NAVY JET AIRCRAFT PROCUREMENT PROGRAM

UNIVERSITY
OF MICHIGAN

JAN 30 1956

MAIN
READING ROOM

HEARINGS

BEFORE A

SUBCOMMITTEE OF THE COMMITTEE ON GOVERNMENT OPERATIONS HOUSE OF REPRESENTATIVES

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FIRST SESSION

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NAVY JET AIRCRAFT PROCUREMENT PROGRAM

MONDAY, OCTOBER 24, 1955

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON MILITARY OPERATIONS
OF THE COMMITTEE ON GOVERNMENT OPERATIONS,
Washington, D. C.

The subcommittee met, pursuant to call, at 10:10 a. m., in room 1310, New House Office Building, Hon. Chet Holifield (chairman of the subcommittee) presiding.

Present: Representatives Holifield, Garmatz, Griffiths, Hoffman, Riehlman, and Lipscomb.

Also present: Michael P. Balwan, staff director; Herbert Roback, director of investigations; James F. Eckhart, assistant counsel; Earl J. Morgan, investigator; and Robert J. McElroy, investigator.

Mr. HOLIFIELD. The subcommittee will be in order. Let the reporter's record show that Mr. Riehlman, Mr. Lipscomb, Mrs. Griffiths, Mr. Garmatz, and Mr. Holifield are present.

The Military Operations Subcommittee of the House Committee on Government Operations today is holding public hearings on certain aspects of the Navy jet plane procurement program, particularly those related to the procurement of J–40 jet engines manufactured by the Westinghouse Electric Corp., and the F3H aircraft manufactured by McDonnell Aircraft Corp. The Westinghouse plant is located in Kansas City, Mo., and the McDonnell plant in St. Louis, Mo.

The subcommittee is inquiring into this matter at the direction of Hon. William L. Dawson, chairman of the House Committee on Government Operations, following a letter of request by Hon. Frank Karsten, Member of Congress from the First District in Missouri. The McDonnell plant is located in Mr. Karsten's district.

The letter of request from Mr. Karsten to Chairman Dawson is dated September 25, 1955. If there is no objection, the letter will be inserted in the record at this point.

(The document referred to is as follows:)

HOUSE OF REPRESENTATIVES,
Washington, D. C., September 25, 1955.

Hon. WILLIAM L. DAWSON,
Chairman, Committee on Government Operations,
House of Representatives, Washington, D. C.

DEAR MR. CHAIRMAN: Information has come to me that approximately 50 Demon jet fighter planes produced at the McDonnell Aircraft Corp. plant at Lambert St. Louis Municipal Airport have been found unsuitable by the Navy Department.

This airplane was designed as a carrier-based fighter, and the Navy Department has indicated that the Westinghouse jet engines with which they are equipped are of insufficient power for the weight of the aircraft. Twenty-nine of the

planes, I understand, are being refitted with new engines of greater power made by the Allison Corp. Investigations disclose that the cost of these conversions will exceed more than $4 million. This, along with other modifications, may enable these 29 planes to be salvaged for use as land trainers.

The remaining 21 airplanes are parked on the ramps of the St. Louis Municipal Airport. I am quoting the following attributed to the report of the Naval Bureau of Inspection and Survey:

"* * * The cost of bringing the remaining 21 of these planes to a standard F3H 2N configuration is considered to be prohibitive, almost equaling the cost of the new F3H 2N models.

"Installation of another engine is not considered practical nor economical, particularly in these early production aircraft."

Navy Department spokesmen have indicated that these 21 planes, which cost approximately $1,350,000 each, will be used only for testing and research and that probably none of them will ever leave the ground. Manufacturers of the Westinghouse engine contend that if the engine provided is not adequate it is not the fault of Westinghouse, but of the Navy. The Navy has declined to fix responsibility. Evidence of the plane's unsuitability and faulty design is demonstrated by the fact that out of the 56 which were built, 6 of them have crashed during test flights, killing 2 of the pilots.

Lack of power is not a latent defect, but rather this is one of the first things a test pilot would observe in testing an aircraft with an inadequate engine. This defect would manifest itself from the moment the throttle was opened for takeoff. It is difficult to understand why the Navy would continue to accept delivery of planes with a defect such as this which could not escape observation.

This is a most serious matter, involving millions of dollars. Repeated mistakes of this kind will have the effect of reducing our airpower to a second best air force.

The purpose of this letter is to respectfully request you to consider the advisability of ordering a full congressional investigation by the Committee on Government Operations or a subcommittee thereof in order to study the procurement practices of the Navy Department and assess responsibility in this matter. More important we must see to it that appropriate steps are taken in order that there will not be a recurrence of such errors in the future in the procurement of naval and other aircraft.

Sincerely yours,

FRANK M. KARSTEN.

Chairman Dawson replied to Mr. Karsten by letter dated September 26, advising him that the matter had been referred to the Military Operations Subcommittee. Without objection, Chairman Dawson's letter will be inserted in the record at this point, as well as a letter from Mr. Karsten to me dated September 28, 1955.

(The documents referred to are as follows:)

HOUSE OF REPRESENTATIVES,
COMMITTEE ON GOVERNMENT OPERATIONS,
Washington, D. C., September 26, 1955.

Hon. FRANK M. KARSTEN,
House of Representatives,
New House Office Building, Washington, D. C.

MY DEAR COLLEAGUE: I am in receipt of your communication of September 25, 1955, with reference to the aircraft produced at the McDonnell Aircraft Corp. plant at Lambert, St. Louis Municipal Airport. In reply I wish to thank you for bringing this matter to the attention of our committee. I am immediately taking this up with Hon. Chet Holifield, chairman of our Subcommittee on Military Operations. I am sure that you will be hearing from him at the earliest possible moment.

Again thanking you and with sincere regards, I am,

Very truly yours,

WILLIAM L. DAWSON, *Chairman.*

HOUSE OF REPRESENTATIVES,
Washington, D. C., September 28, 1955.

Hon. CHET HOLIFIELD,
Chairman, Subcommittee on Military Operations,
Committee on Government Operations,
House of Representatives, Washington, D. C.

DEAR MR. CHAIRMAN: I have been informed by Chairman William L. Dawson, of the Committee on Government Operations, that my letter of September 25, in which I requested the committee to make an investigation of the Demon jet fighter plane program has been referred to you.

Fifty-six of these airplanes were produced at the McDonnell Aircraft Corp. plant at the Lambert-St. Louis Municipal Airport. These ships originally were all equipped with Westinghouse jet engines of the J–40 type. The Navy Department found that these engines were of insufficient power for the weight of the aircraft and 29 of the planes are being refitted with engines which are of greater power. The cost of their conversion will exceed $4 million. Six of the planes crashed in test flights, killing a number of pilots, and the Bureau of Inspection and Survey of the Navy Department has concluded that the cost of bringing the remaining 21 up to standard would be prohibitive. The Board held that the installation of another engine is not considered practical, nor economical, and these ships will probably never leave the ground.

Since writing the letter to Mr. Dawson, information has come to me that the Westinghouse jet engine plant at Kansas City continues to produce the J–40 engines, although production has been stopped on the aircraft that these engines are supposed to power. So far as I know, the Westinghouse Corp. has no other production contract requiring continued manufacture of this engine. These engines cost $225,050 each, and if the Westinghouse Corp. is going to continue to produce them the committee will probably want to look into this phase without delay.

In addition, I would like to call to the attention of the committee a published statement on September 14, 1955, attributed to Gwilym A. Price, president of the Westinghouse Electric Corp. He stated, "The cancellation by the Navy of two jet engine contracts, involving several hundred million dollars, was a real body blow. We had an ungodly amount of trouble with those engines (J–40 and J–46 jets) and they just didn't meet performance standards."

I felt I should bring this additional information to your attention in order that it can be considered, along with the other facts, in connection with the investigation that is being conducted by the Subcommitee on Miliary Operations.

With kind regards,

Sincerely yours,

FRANK M. KARSTEN.

On September 26, I directed the subcommittee staff to undertake a preliminary investigation concerning the alleged difficulties of this and related phases of the Navy jet plane procurement program. Secretary of the Navy Charles S. Thomas was advised by telegram of this preliminary investigation, and I made a public announcement to the same effect.

Secretary Thomas wired a reply on September 29 in which he indicated his willingness to supply information on the airplane procurement program. Without objection my telegram to Secretary Thomas, the text of my public announcement, and Secretary Thomas' reply to my telegram will be inserted in the record at this point.

(The documents referred to are as follows:)

SEPTEMBER 27, 1955.

CHARLES THOMAS,
Secretary of the Navy,
Washington, D. C.:

This subcommittee was notified on September 26 of certain alleged difficulties with respect to a Navy airplane procurement program. The chairman of the Government Operations Committee has asked me to look into these charges as soon as possible.

I have directed the subcommittee staff to make a preliminary inquiry in order that I as chairman, and other members of the subcommittee, might more properly

evaluate the facts in the case from the point of view of determining whether a subcommittee investigation is necessary.

I am wiring to notify you (1) of this subcommittee's action as to the preliminary inquiry and (2) to request that you provide the staff with assistance in securing the necessary background data involved in this case.

Your cooperation in this matter will be deeply appreciated.

Sincerely yours,

CHET HOLIFIELD,
Chairman, Military Operations Subcommittee.

PUBLIC ANNOUNCEMENT BY CHAIRMAN HOLIFIELD, SEPTEMBER 26, 1955, OF SUBCOMMITTEE INQUIRY INTO NAVY JET PLANE PROCUREMENT

I have directed the staff of the Military Operations Subcommittee to make a preliminary inquiry into the basis of published reports that the Navy has expended large sums of money on fighter aircraft that won't fly. This inquiry follows a request by Congressman Frank M. Karsten, of Missouri, to the House Committee on Government Operations that the matter be investigated. Twenty-one of the 50 fighter planes in question are said to be parked on the contractor's ramps at the St. Louis Municipal Airport. Congressman Karsten's letter of request has been referred to my subcommittee by Chairman William L. Dawson of the full Committee on Government Operations.

The preliminary inquiry will be directed to obtaining the background facts in the case. As soon as the staff inquiry is completed, I will want to discuss the results immediately with the other members of the subcommittee and with Chairman Dawson. If there is a substantial question of faulty procurement by Navy officials, our subcommittee will want to pin down the responsibility. I am particularly concerned about the report that 6 planes have crashed and 2 test pilots have been killed in the operation of these planes.

SEPTEMBER 29, 1955.

Hon. CHET HOLIFIELD,
Los Angeles, Calif.:

The difficulties with the F3H–1 McDonnell aircraft mentioned in your wire of September 27, 1955, stem from aircraft produced under letters of intent let 4 years ago, or in October 1951, and converted into a formal contract in August 1952. These letters of intent and contract were let under procurement procedures now considered inadequate. From the time the deficiencies became apparent in this aircraft engine combination the Navy has made a great effort to correct these deficiencies and also to utilize the aircraft which had already been produced to the best advantage possible.

Approximately 2½ years ago, new procurement procedures were developed and have since been put into effect which should prevent a recurrence of such a situation. A Subcommittee of the House Armed Services Committee was given detailed information relative to this contract last March and this information is available to you at any time to suit your convenience.

CHARLES THOMAS,
Secretary of the Navy.

In view of the numerous stories appearing in newspapers and magazines, based upon what appeared to be incomplete information or conflicting statements by Navy officials and the Westinghouse Electric Corp., it was decided that public hearings were necessary. Such hearings will allow the interested parties fully to state their case and enable the subcommittee to make an evaluation based upon accurate determination of the facts.

After contacting available members of the subcommittee, on October 5, I sent a telegram to Secretary Thomas advising him that public hearings would be scheduled by the subcommittee commencing October 24. Without objection, the text of my wire to Secretary Thomas and subsequent correspondence will be inserted in the record at this point.

(The documents referred to are as follows:)

OCTOBER 5, 1955.

Hon. CHARLES S. THOMAS,
Secretary of the Navy, Washington 25, D. C.:

After reviewing data which you submitted to the staff of the Military Operations Subcommittee and other information concerning Navy jet airplane procurements, I believe the best interests of the Navy and the public would be served by public hearings on the matter. Such hearings should help to eliminate confusion and misunderstanding as to the facts, clarify Navy policies and procedures, and establish responsibilities of the parties involved.

The subcommittee plans to hold public hearings beginning October 24. We will want to hear Navy and other witnesses concerning the F3H, the J–40, and related airplane programs. It is my belief that the relevant facts should be publicly disclosed to the greatest possible extent consistent with national security. I have instructed the subcommittee staff to provide you as soon as possible with hearing details and arrangements.

CHET HOLIFIELD,
Chairman, Military Operations Subcommittee.

HOUSE OF REPRESENTATIVES,
MILITARY OPERATIONS SUBCOMMITTEE OF THE
COMMITTEE ON GOVERNMENT OPERATIONS,
Washington, D. C., October 18, 1955.

Hon. CHARLES S. THOMAS,
Secretary of Navy, Washington 25, D. C.

DEAR MR. SECRETARY: This letter will indicate to you the plan of the announced hearing scheduled on October 24, 1955, concerning the Navy aircraft and aircraft engine procurement programs.

The hearing will begin in open session in room 1310, New House Office Building, at 10 a. m., at which time the presence of Navy witnesses is requested.

The subcommittee plans to receive testimony from Navy witnesses commencing Monday afternoon at a time to be specified by the chairman during the morning session. The subcommittee would like to have you present the official Navy position if you find it convenient to be present. In addition to any other witnesses whose presence you deem necessary to supply testimony and who would be responsive to the subcommittee's areas of inquiry, it is requested that the following be present for questioning by the subcommittee members:

Capt. H. T. Dietrich, Acting Chief, Plans and Coordination, Bureau of Aeronautics
Comdr. R. B. Woodhull, Assistant Director, Powerplant Division, Bureau of Aeronautics
Lt. Col. J. F. Bolt (USMC), project officer, F3H, Fighter Design Branch, Aircraft Division, Bureau of Aeronautics
W. M. Crickenberger, Termination Section, Contracts Division, Material Services, Bureau of Aeronautics
Capt. A. M. Blamphlin, Bureau of Aeronautics representative, Kansas City, Mo.
Captain Smith (initial unknown), formerly BAR, Kansas City, Mo.
Capt. C. H. S. Murphy, formerly BAR, St. Louis, Mo.
Capt. C. Park Sager, BAR, St. Louis, Mo.
Lt. Comdr. Nicholas J. Smith, Navy test pilot, performing preliminary evaluation on F3H planes at St. Louis, Mo., March 1954

Although the staff has been informed that Rear Adm. Lloyd Harrison has been detached from active duty as the Acting Chief of the Bureau of Aeronautics, it is requested that he be present to testify with respect to the below-mentioned programs to the extent that these programs were pursued during his tour of duty in the Bureau of Aeronautics.

The subcommittee will want to examine such programs as may be indicated by the following:

(1) Description of the Navy's development and procurement program relating to airplanes and engines for attack and fighter aircraft. In addition to any others which the Navy should wish to describe to the subcommittee, it is particularly interested in the F3H, F4D, A3D, and the F10F. To a lesser extent at the

present time, the subcommittee would like a description of the programs relating to the F7U, F2Y, and the A2U.

(2) The expenditures related to the programs mentioned above as well as to the Westinghouse J–40 and J–46 engine programs. For example, it will be necessary to have breakdowns of the expenditures for airframes and engines in terms of research and development, production, tooling, facility construction, or conversion, and termination costs pertaining to these programs where this is applicable.

With respect to the topics mentioned above, it would be appreciated if your statement would treat in detail information related to the J–40, J–46 engines, and the F3H airframe. A less detailed presentation may be used in reference to the other aircraft programs mentioned. In any case I want to advise you in advance that the Navy should be prepared to respond to questions which may be raised concerning those programs beyond the J–40, J–46, and the F3H airframe even though you are not expected to include extensive reference to them in your prepared statement. It is requested also that you supply at least 25 copies of your prepared statement in advance of the hearing and not later than Saturday noon, October 22, 1955.

Other areas of interest to the subcommittee include (1) the procedures which control termination decisions, and (2) reorganization plans for the Bureau of Aeronautics. The subcommittee will want to know how it determined that a contract should be terminated by default as against termination at the convenience of the Government. What were the circumstances which led to the decision to terminate at the convenience of the Government in the case of the Westinghouse engine contract.

With respect to reorganization of the Bureau of Aeronautics, the subcommittee wants to know why, if any, reorganization plan was advanced, its nature, whether it has been adopted, and what is expected by the new plan.

On October 12, 1955, I requested certain information and documents pertaining to various contracts. It would be helpful if these could be made available to the subcommittee staff this week. You will note that this letter repeats some of the requests made in that letter.

Of particular interest to the subcommittee is the request for a determination of the extent to which you will declassify any documents or information pertaining to matters under inquiry in order that these might be brought out in public hearings.

It is my conviction that, to the extent to which it is consistent with national security considerations, the public be given an opportunity to receive as complete a picture of developments in this procurement as possible. Accordingly I have scheduled the Navy to present its position on Monday afternoon in executive session, if this meets with your approval. On Tuesday morning we plan open hearings to the public and to hear the Navy position through an unclassified statement with unclassified documentation and information.

I respectfully request, therefore, that you advise my staff this week concerning the areas of security information and concerning the best course to take in proceeding with this public hearing.

I hope this letter will serve as a guide in preparing your material.

Respectfully,

CHET HOLIFIELD,
Chairman, Military Operations Subcommittee.

As chairman of the subcommittee, I wish to emphasize that we are interested in establishing the facts and the responsibilities of those involved in the Navy airplane-procurement program. We are concerned with determining whether effective procurement procedures have been instituted to prevent a recurrence of the difficulties which seem to have been encountered in this program and which we will develop in the hearings.

We are, of course, concerned with all phases of the difficulties encountered in the present procurement.

Representations have been made to the subcommittee that millions of dollars in public funds have been expended by the Navy in the procurement of jet airplanes that are not serviceable, and that some 50 of these planes are now standing idle on the ramps at the contractor's plant.

It is our intent to find out exactly what is the situation and who is responsible.

The subcommittee will proceed in the following manner: The morning session will be taken up with testimony from the subcommittee staff investigators. The staff reports will lay the groundwork for testimony by Navy representatives as well as by representatives of the Westinghouse Electric Corp. and McDonnell Aircraft Corp. The subcommittee reserves the right to call other witnesses at any time in the proceedings.

Since a great deal of the information on the Navy jet-airplane program has not yet been declassified, the subcommittee is presented with a problem in arranging for public hearings.

The staff statements do not contain security information. The Navy officials will testify in executive session this afternoon and we will then, if we have time, have a public session for the Navy officials which can be carried over to the public session tomorrow morning.

In this way the subcommittee will have the benefit of full information including classified material. The subcommittee will rely on the Navy witnesses at the public hearings today and tomorrow to present the full story consistent with the requirements of national security.

We are proceeding in this manner so that the subcommittee will be able to distinguish properly between the classified and nonclassified material and to guide itself accordingly.

At this time I will ask Mr. James Eckhart, assistant counsel, and Mr. Earl Morgan, investigator, of the subcommittee staff to take the stand. These gentlemen have assembled considerable information concerning the Navy airplane procurement program; and, to conserve time, questions will be directed to them in order to get the information into the record.

As the subcommittee members and others in attendance at this hearing can well understand, the subject matter is highly technical and complex. To get an accurate record, we will have to deal with many dates and contract numbers and airplane or engine model numbers and sometimes with a rather unfamiliar terminology of military aircraft procurement. This preliminary presentation will be supplemented and, if necessary, corrected by the Navy and other witnesses.

I ask the subcommittee members to have patience and to bear with me in the development of the record. Of course, subcommittee members should feel free to interject at any time with questions and to seek clarification on any point that is not clear.

Mr. Eckhart and Mr. Morgan, will you please take the stand?

Mr. HOFFMAN. Mr. Chairman, there is only one thing that I want to call attention to, and that is this. It is apparent from the statement just read that you hear the staff this morning; then, if I heard correctly, we will go into executive session.

As I understand, the Navy desires and will present a statement to the committee which will hit the press at approximately the same time as the statement from the committee staff.

Whether the committee desires to receive that statement to be submitted to the press, I do not know. I assume that, if the committee refuses that privilege, they still can hand their statements to the press.

Mr. HOLIFIELD. The Navy is the judge of its own procedure. We will endeavor to conclude our executive hearings in ample time for the Navy to come before the committee again in public session and to release such statement as they wish to the press for the evening papers.

Mr. HOFFMAN. You mean that the Navy will have the same opportunity to present its statement to the press that the staff witnesses have?

Mr. HOLIFIELD. The Navy is the judge of its own procedure. This committee will proceed under the procedure outlined and be the judge of its own time and go into executive session.

Mr. HOFFMAN. Then I can only say, if the Navy desires to have its statement presented at noon, if they hand it to me, I will hand it to the press.

Mr. HOLIFIELD. That is up to you.

Mr. Eckhart and Mr. Morgan, do you swear that the testimony you are about to give to this subcommittee will be the truth, the whole truth, and nothing but the truth, so help you God?

Mr. ECKHART. Yes, sir.

Mr. MORGAN. Yes, sir.

Mr. HOLIFIELD. Could you advise the subcommittee of the work that this subcommittee has done in terms of places visited, people interviewed, and when these took place, Mr. Eckhart?

TESTIMONY OF JAMES F. ECKHART, ASSISTANT COUNSEL, MILITARY OPERATIONS SUBCOMMITTEE; ACCOMPANIED BY EARL J. MORGAN, INVESTIGATOR, MILITARY OPERATIONS SUBCOMMITTEE

Mr. ECKHART. Mr. Chairman, I am going to step over to this board to see whether all of you can hear me because I would like to make a few little scratches.

Mr. HOLIFIELD. We can hear you.

Mr. ECKHART. At your direction, Mr. Chairman, on the morning of September 28 of this year, Mr. Morgan and myself went to the Pentagon Building and conferred with the Honorable Charles S. Thomas, Secretary of the Navy, and the Honorable Thomas Gates, Under Secretary of the Navy. This happened at about 11 o'clock in the morning. We indicated that we had been instructed by the chairman to conduct a preliminary inquiry into the F3H and the J–40 engine procurement program.

That same day, with the permission of Secretary Gates, we met with about 12 representatives of the Bureau of Aeoronautics in the office of the Chief of the Bureau, Admiral Russell. This conference lasted for about 2½ hours, and during this conference the F3H procurement program, the J–40 engine procurement, and related aircraft procurement programs that would be concerned with the J–40 engine were discussed.

This conference was transcribed at the request of the Navy, and a copy of this conference was made available to the staff for its study. On September 30, 1955, at 11 o'clock, Mr. Morgan and myself, at the request of the Under Secretary of the Navy, proceeded to his office where we received a formal briefing by Captain Dietrich, who was

then the acting Chief of Plans and Programs of the Bureau of Aeronautics.

He is now executive director in the office of the Assistant Chief of the Bureau, for Plans and Programs, Admiral Dixon. Secretary Gates presided at this conference or at this briefing, and responsible officials of the Bureau of Aeronautics were present, including the chief, Admiral Russell. On October 3 and 4 Mr. Morgan and I traveled to Kansas City and conferred with the management staff of the Westinghouse Electric Corp. That is a division of the Westinghouse Electric Corp. and the responsible official out there is referred to as the general manager.

He is W. Waits Smith; together with Mr. Smith at this conference were Mr. Henderson, manager of operations; Robert T. Wells, administrative assistant to the general manager and formerly the chief engineer on the research and development on the J–40 engine; Allan Chilton, who is presently the chief engineer; and Capt. A. M. Blamphin, United States Navy Bureau of Aeronautics representative at Kansas City.

We will use BAR quite frequently, and that refers to the Bureau of Aeronautics representatives. They have these at the plant where the Bureau of Aeronautics has supervision over the contracts.

On October 5, 1955, Mr. Morgan and I met with representatives of the McDonnell Aircraft Corp. at St. Louis. These conferences were held at various offices in the plant. And the following representatives of McDonnell Aircraft were interviewed:

R. K. Charles, who is the executive vice president; D. P. Murray, the manager of contracts; R. J. Baldwin, who is the chief systems engineer and formerly the project engineer on the F3H aircraft program.

This [indicating] is the F3H aircraft that we will be discussing during these hearings and this is the plane that was supposed to be equipped with a Westinghouse J–40 engine which we will also be discussing.

On October 4 the additional representatives with whom we discussed this program at McDonnell were Robert C. Little, chief test pilot; Captain C. Park Sager, Bureau of Areonautics Representative there; and Commander R. H. Shireman, Jr., executive officer.

On October 4, 1955, while Mr. Morgan and I were in Missouri, Mr. Balwan, who is the staff director of the subcommittee, conferred with Mr. C. S. Weber, a vice president of Westinghouse in Washington.

During the course of our field investigation, Mr. Morgan and I attempted to divide the work up into several areas. For example, we both spent all day Monday, October 3 and part of October 4 in Kansas City. He preceded me to St. Louis and conferred with some of the people. I joined him later that same day and the following day we both conferred with the Bureau of Aeronautics Representatives for most of the day.

That, Mr. Chairman, is the preliminary background work that was performed by the staff preparatory to the hearing.

Mr. HOLIFIELD. Since there have been some newspaper stories of crashes of these planes and deaths of pilots, could you advise the subcommittee members of what you found about these matters?

Mr. ECKHART. Mr. Chairman, Mr. Morgan and I attempted to divide this work up into various areas and that was one of the areas that he spent a great deal of time on. I would rather refer that question to him.

Mr. HOLIFIELD. Mr. Morgan will you please give the committee the benefit of your knowledge on this point?

Mr. MORGAN. Mr. Chairman, a discrepancy exists in the actual number of accidents and those reported in the newspapers. At the time of our investigation the Navy advised that there had been 11 crashes; 7 of these were classified as major crashes, and 4 were of a lesser degree of seriousness.

In these 7 major crashes, 4 of the pilots were killed; one of these was a Navy test pilot and the other 3 were McDonnell Aircraft Corp. test pilots. The causes of these crashes were listed as engine failure in 6 instances, airframe malfunction in 3, and in 2 the cause could not be attributed to either airframe or engine failure alone.

Mr. HOLIFIELD. Will you please repeat the numbers?

Mr. MORGAN. There were 11 crashes; 7 of them were classified as major crashes. Of these 7, 6 were attributed to engine failure, 3 to airframe difficulties and 2 could not be attributed to either airframe or engine failure alone.

Mr. HOLIFIELD. Apparently there is some disagreement among the Navy, the engine maker, and the airframe manufacturer as to the causes for these accidents.

Mr. MORGAN. Yes, sir.

Mr. HOLIFIELD. Will you give us some information on that?

Mr. MORGAN. Yes, sir. There is disagreement among the Navy and the engine maker and airframe manufacturer as to the causes for these accidents.

For instance, I doubt that Westinghouse will agree with the statement that 6 of these were due to engine failure, and likewise McDonnell would not readily admit that 3 of these could have been caused by airframe malfunction. This is probably brought about by the conclusions each of them come to in their separate ways of determining the causes.

For instance, during the course of our investigation, I saw a summary of accidents at McDonnell and there was a discrepancy in the accidents there and those reported by the Navy. They break down their accidents as accidents which are of a more serious nature and incidents which are not as serious as an accident but in which damage may be involved, damage to the aircraft.

Mr. HOLIFIELD. You have talked with some of these test pilots, Mr. Morgan. How do they feel about the way these planes fly and to what do they attribute the cause of failure?

Mr. MORGAN. Sir, Mr. Robert Little, who is scheduled to appear at the hearing later on is the chief test pilot at McDonnell, and he reportedly has a great number of flying hours in the F3H–1 airplane. He was the second pilot checked out in this airplane. Mr. Little commented to us at St. Louis that the general attitude among the test pilots was that the engine was unreliable and underpowered for the airframe. The pilots were concerned about this unreliability and the number of crashes it had involved.

After the last crash on July 7 of this year, in which a McDonnell pilot was killed, Mr. Little felt that the pilots would have refused to fly the airplane any longer if it had not been grounded at that time.

This statement was mentioned also by one of the other officials at McDonnell, that this was the general feeling at McDonnell of management as well as the pilots.

Mr. HOLIFIELD. Do the pilots keep a technical record of their flight experience and did you see any of these records?

Mr. MORGAN. Yes, Mr. Chairman, it is my understanding that the pilots keep a technical record of their flight experience as the usual procedure in a test flight.

The test plane is followed by what is called a chase plane in which another test pilot is in constant radio contact with the first pilot and observes the plane being tested, and on some occasions if not on all occasions a recording is made of their actual conversations.

Mr. HOLIFIELD. Was this information made available to you concerning the flights classified in any way?

Mr. MORGAN. A transcription was made of the initial Navy preliminary evaluation test performed by Lt. Comdr. Nick Smith. This transcription was classified as confidential.

I understand that the McDonnell representatives have brought this transcription with them. In fact we have received it this morning in the office of the subcommittee and it will be necessary to discuss that in executive session as it is still classified.

Mr. HOLIFIELD. We will take that up in executive session.

Mr. Eckhart, newspapers have reported, I believe, that there were 26 airplanes sitting on the ramps of the McDonnell Aircraft Corp. You visited the McDonnell plants. What did you find there?

Mr. ECKHART. As you will recall, Mr. Chairman, when some of the stories first reached the newspapers there were discrepancies in the number of airplanes actually purchased by the Navy and installed with engines and the number that were actually on the McDonnell ramps. On the second day we were in St. Louis we asked permission of the Bureau of Aeronautics representatives to go out on the ramp and to look at these planes that we have been talking about and also permission to make a physical count.

We walked along the ramp there and we counted a total of 47; of that 47, 11 had engines installed and 36 did not have engines installed.

As I walked around there I noticed that there were McDonnell mechanics working on these planes and I stopped and conversed with them and asked them what they were doing.

They were actually checking the plane for mechanical functioning of some of the moving parts like the landing gear, checking pressure of tires, checking leaks, and things of that nature, and apparently they had permission or an agreement with the Navy that as part of the preservation of the plane they were authorized to make minor corrections to anything that they discovered.

Mr. HOLIFIELD. Do you know whether these planes are considered contractors' property or whether they are the property of the United States Navy?

Mr. ECKHART. Well, we understand they are the property of the United States Navy, Mr. Chairman, but the fact that McDonnell personnel were still working on the planes and one man told me that the

work that he was doing on the plane had never been done before and it was necessary preparatory to the installation of an engine, it raised some doubt in my mind as to whether the title had actually been transferred to the Navy or whether they were still in the hands of McDonnell for other small jobs to be completed on them.

Mr. HOLIFIELD. We will try to develop that point with the Navy later. At this point it may not be important but have you been able to determine how these planes will be transferred from St. Louis to Litchfield Park, Ariz., since they have been grounded?

Mr. ECKHART. Yes, sir; that point was raised with the BAR officer and he had advised us that preliminary plans had been made to take these planes through the city of St. Louis on trailers of some kind, through the streets of St. Louis, and then they were going to be transferred to barges or some other form of transportation for movement to Litchfield. They will not be flown to Litchfield.

Mr. HOLIFIELD. There is no barge line that I know of that goes to Litchfield, Ariz. I assume they will take them off the barges and put them on some other kind of transportation.

Mr. ECKHART. That was not too clear, Mr. Chairman.

Mr. MORGAN. If I may inject a comment here. This is a carrier-based airplane and the wings will fold up, making it much narrower than it appears, which would enable them to haul it through the streets.

Mr. HOLIFIELD. On trailers?

Mr. MORGAN. Yes; or pull it by some other locomotion.

Mr. HOLIFIELD. Mr. Eckhart, do you know whether or not the Navy is paying any storage costs on these planes while they are stored at McDonnell?

Mr. ECKHART. We were advised by Navy representatives that the Navy is paying storage costs on the planes stored at the McDonnell ramps.

Mr. HOLIFIELD. Do you know what the cost is?

Mr. ECKHART. No, sir; I do not.

Mr. HOLIFIELD. Was any work being done on these planes when you visited the ramp?

Mr. ECKHART. Yes, sir. Some of the work I have already described to the committee was being done on these planes. That was the one thing that created doubt in my mind as to whether or not they were actually transferred to the Navy or whether they were still contractor property.

Mr. HOLIFIELD. We have been talking about the airframe up until this time. We understand that these airframes were grounded because the engine was unreliable and underpowered for the airframe. If this is so, do you know why the Navy accepted those engines in the first place?

Mr. ECKHART. Mr. Chairman, now that we are getting into the engine, I would like to use the blackboard for a moment and try to write out the names involved because there are quite a few.

The engine that we are talking about is the J–40 model. And there are numerous types of this J–40 engine. There is a suffix to this J–40, WE, which stands for Westinghouse Electric. One of the first engines procured by the Navy on development contract for use in the experimental versions of the XF3H aircraft—the prefix

"X" before the designation of the plane indicates experimental and the F3H is the productoin model—the first engine was J–40–WE–2 engine. That was followed by a 40–WE–4. That was followed by a 40–WE–6. That was followed by a 40–WE–8, 40–WE–22A, and a 40–WE–22. It is not possible, Mr. Chairman, to give the exact sequence of the way the contracts, either development or production, were let for these engines. That is classified information, and will have to, of course, be received in executive session, but I think we can go as far as saying that this group of engines right here [indicating] was in the category that we termed lower thrust engines.

There was another group of engines characterized as higher thrust engines having the same prefix before them but being the WE–10, 12, 24, and 26.

Mr. HOLIFIELD. Does that complete your blackboard presentation?

Mr. ECKHART. I think that is all we can say about these, Mr. Chairman, and still stay within our security classification bounds.

Mr. HOLIFIELD. All right, as I understand, the Navy may accept an engine after it has satisfactorily been tested, after it has satisfactorily performed at the contractor's plant and later proved to be an unacceptable engine, after it had been received by the airframe manufacturer.

Mr. ECKHART. These engines produced by Westinghouse go through a series of tests at the plant. The final test is the 150-hour qualification test, which means that the engine should be able to perform for 150 hours without breakdown.

After these tests are performed, the engines are accepted by the Navy, they become Navy property, they are transferred from Westinghouse to the airframe manufacturer, which in this case was McDonnell, and they are given to the McDonnell people as Government-furnished equipment.

Mr. HOLIFIELD. Now your explanation of the engines there indicates that we are dealing with a number of engines rather than just one engine. You are demonstrating on the blackboard and indicating that we are dealing with quite a number of engines instead of just one.

Mr. ECKHART. Yes, sir. All of these engines that are listed on the blackboard, Mr. Chairman, will be discussed at some time during the hearing.

Mr. HOLIFIELD. What engine or what model of the engine did the Navy want in the first place and what model went into the plane or planes that are now on the ramps.

Mr. ECKHART. The J–40–WE–10 was the engine that the Navy contends was originally designed for the production plane—the F3H. The early development models of the engine which are designated as WE–2, 4, and 6 were used in experimental versions of the XF3H plane.

Mr. HOLIFIELD. Was the WE–10 engine ever received?

Mr. ECKHART. No, sir; it was never produced.

Mr. HOLIFIELD. Do you know why they contracted for the WE–10 engine which had never been successfully developed?

Mr. ECKHART. Mr. Chairman, I think that would call for an opinion on my part and I would rather pass over that question. The information received by the staff on that question actually has not been too satisfactory and I think there will have to be discussions with some of the Navy officials on that point.

Mr. HOLIFIELD. After the installation of the WE–22 engine in these planes, what was the status of these planes for Navy use?

Mr. ECKHART. The J–40–WE–22 engine was installed in the airplanes that we saw at the ramp and most of those that were used for testing purposes.

I might say at this time, when the Navy began to develop the XF3H airframe it was to be in the weight class of approximately 22,000 pounds. Prior to the beginning of the production on the XF3H, which was supposed to be an interceptor, the mission of the aircraft was changed to that of an all-purpose fighter. With the change in mission, we had an aircraft that had additional equipment and possibly some minor changes in the airframe itself which increased the weight of it to something in the general category of 29,000 pounds.

It is possible that had the aircraft remained at approximately 22,000 pounds, the WE–22 engine would have been sufficient, but actually the mission of the aircraft was changed before they went into production and after they went into production it was necessary to have a higher thrust engine, which would have been the four listed on the right there, either the 10, 12, 24, or 26, none of which was ever successfully produced by the Westinghouse Co.

Mr. HOLIFIELD. How many of the WE–22 engines were accepted by the Navy?

Mr. ECKHART. According to the information furnished the staff, there have been 23 WE–6——

Mr. HOLIFIELD. How many?

Mr. ECKHART. Twenty-three WE–6's, 14 WE–8's, 46 WE–22's, 50 WE–22A's, 5 WE–22G's, and 30 WE–I's. This totals 168 engines. Only 11 of this total remain to be delivered.

Mr. HOLIFIELD. Do you have any information as to why so many of these jet engines were delivered? Was it necessary to have that many to make these tests?

Mr. ECKHART. This is an area, Mr. Chairman, where my associate, Earl Morgan, worked in going over this contract, and that question more properly should be directed to him.

Mr. HOLIFIELD. Can you give us some information on that, Mr. Morgan?

Mr. MORGAN. It was originally intended that this J–40 engine, one of the series there, was to go into 3 other aircraft, the F10F being built by Grumman, the F4D and the A3D built by Douglas. There on your right is a model of the F4D and the A3D.

Mr. HOLIFIELD. How many of these 168 engines were actually put on the test block?

Mr. MORGAN. All of these would go on the test block.

Mr. HOLIFIELD. How many were tested in flight?

Mr. MORGAN. Actually 20 of the WE–22 series were tested in flight and I believe all of the sixes and eights were actually delivered. As to whether all of them were installed, I cannot say. They were used in various developmental model airplanes of one type or another such as the F3H or 1 of those 2 others on the rostrum there.

Mr. HOLIFIELD. How many of the J–40 engines of all types were manufactured and actually delivered to the Navy and accepted by the Navy. Do you have that information?

Mr. MORGAN. Mr. Eckhart gave you that just a moment ago. I will repeat it. There were 23 WE–6's.

Mr. HOLIFIELD. That was the total of 168.

Mr. MORGAN. That was 168. Actually there are still the remaining 11 to be delivered, which would bring the total up to 179.

Mr. HOLIFIELD. They were all accepted by the Navy, were they?

Mr. MORGAN. Yes, sir.

Mr. HOLIFIELD. All of those?

Mr. MORGAN. Yes, sir.

Mr. HOLIFIELD. So the Navy has this number of engines on hand whether they are operable safely or not? Is that right?

Mr. MORGAN. Yes, sir.

Mr. HOLIFIELD. Now Mr. Morgan, the aircraft we have been talking about which use the J–40 engine are being permanently grounded, as I understand it now. Is the J–40 engine being used in any other aircraft that you know of?

Mr. MORGAN. No, sir. We were told that the J–40 engine is not going into any other production aircraft at this time.

Mr. HOLIFIELD. And that includes all models, does it?

Mr. MORGAN. That includes all models.

Mr. HOLIFIELD. I believe you stated that 179 J–40 engines were to be delivered on a contract now terminated?

Mr. MORGAN. That is right.

Mr. HOLIFIELD. Do you know the actual number of J–40 engines which were installed in airplanes?

Mr. MORGAN. The J–40 WE–22 or 22–A, those two engines are practically the same, just a minor change in the accessories or in the gear box, 20 of those were actually installed in the F3H1–N. Of these 20, 5 were lost in the crashes and the remaining are still installed in airplanes, the remaining 15.

Mr. HOLIFIELD. Can you explain the designation of 1–N as compared with the others? I don't believe Mr. Eckhart explained that.

Mr. MORGAN. The F3H–1 was the production model of the Demon; the N is a Navy designation for all-purpose fighter.

Mr. HOLIFIELD. Now the newspapers report that the Navy is still buying J–40 engines which have been proven unacceptable. Do you have any knowledge on that?

Mr. MORGAN. Yes, sir. At the time of the termination there were a certain number of engines in the production line so near to completion that the Navy possibly figured it advisable to go ahead and accept delivery, complete the engine at an additional small expense, and then convert these engines to some other useful purpose.

They wanted the hardware which they claim they could use for some other useful purpose.

Mr. HOLIFIELD. This would mean that engines which are now being finished are being delivered on contracts, contracts which have been terminated. Mr. Morgan, is that true?

Mr. MORGAN. Just those 11 remain to be delivered.

Mr. HOLIFIELD. Of course, there was some consideration, I suppose, in the termination of contracts that would include the acceptance of these engines.

Mr. MORGAN. Well, they have to pass the same standard qualifications, go through the same standard qualification test, such as 150-hour ground test, at Westinghouse.

Mr. HOLIFIELD. But not necessarily a flight test?

Mr. MORGAN. I don't think these will be flight-tested; no, sir.

Mr. HOLIFIELD. Do you know what these 179 or 180 engines already delivered or to be delivered are going to be used for?

Mr. MORGAN. We have been told that these are to be used for various programs throughout the military for research and development, for test purposes, or for indoctrination or training of ground crew members or ground mechanics.

Mr. HOLIFIELD. Will you please explain that? Does that mean they are going to use them in test flights?

Mr. MORGAN. No, sir; they will not be used in actual test flights. This will all be ground testing or ground research work.

Mr. HOLIFIELD. But they will be installed in the airframes and then, apparently, students will be put in the airframes and the engine started, and they will run it around on the ground, I suppose, run it around the airfield; is that the method you are speaking of?

Mr. MORGAN. No, sir. I don't think they will actually be installed in the airframe, but the engine itself will be used on a test stand on the ground and not in the airplane.

Mr. HOLIFIELD. Well, what kind of testing can you do on a test stand on the ground of an engine?

Mr. MORGAN. I am not too familiar with that. I think the Navy might be able to give us an answer to that.

Mr. HOLIFIELD. Did they indicate this would be used in training, that they would have pilots there that would start them and stop them and rev them up, and so forth? Would that be used in training or in mechanical tests on the engine itself?

Mr. MORGAN. I think it would be more mechanical training, of the mechanics and not the pilots revving them up.

Mr. HOLIFIELD. Do you have any idea of the salvage value of one of these engines, what the salvage value would be?

Mr. MORGAN. We have been told that some of these have been authorized to be disposed of as excess, but the actual salvage value of one of these engines is not known to the staff.

Mr. HOLIFIELD. Do you know of any companies that were involved in contracts with the Navy Department to manufacture J–40 engines other than Westinghouse?

Mr. MORGAN. Mr. Chairman, a production contract was awarded on the J–40 engines to Ford Motor Co. to produce WE–10's, WE–12's, WE–24's, and WE–26's in substantial number. That contract was terminated before Ford ever produced a single model. There has not been a settlement made on the Ford termination at this time, but it is estimated that this cost will approximate $15 million.

Mr. HOLIFIELD. What was this, tooling-up costs or actual purchase of materials?

Mr. MORGAN. This estimate by the Navy would include tooling and purchase of materials and obligations to subcontractors who purchased materials on the basis of a letter of intent or a contract entered into by Ford and the subcontractor.

Mr. HOLIFIELD. How many manufacturers were involved in the producing of the airframe in which the J–40 engine was originally planned to be used?

Mr. MORGAN. There were 3 manufacturers contracted to produce the F3H airframe. McDonnell was considered the prime source; Goodyear Aircraft Corp. a second source; and Temco Aircraft Corp.

in Dallas, Tex., was another source. Both of these second source contracts were terminated at considerable cost to the Government.

Mr. HOLIFIELD. Do you have the amount of the cost to the Government?

Mr. MORGAN. Yes. The total cost of termination on these 2 secondary source contracts is in excess of $9 million. To be more specific, the Goodyear termination cost the Navy about $303,000. The Temco termination cost about $8,930,000.

Mr. HOLIFIELD. Have these subcontractors delivered any materials to the prime contractors?

Mr. MORGAN. No, sir. Some of these under contract for that number—the contracts for that number of airframes—were later switched to McDonnell. But it is my understanding that there were no deliveries made by either of these second source contractors. As to whether or not any of their inventory left over was bought by McDonnell or transferred to McDonnell to be charged against the contract, I cannot answer.

Mr. HOLIFIELD. What was the termination cost on the Westinghouse contract? Would you provide the committee with the figure that was spent for development work, how much the Government invested in facilities, and what the cost to the Government was for the engines that were delivered and which are not to be used to fly airplanes?

Mr. MORGAN. According to the information furnished to the staff, the cost to the development program of Westinghouse, exclusive of facilities and tooling, was in excess of $27 million. The termination of the production contract with Westinghouse was approximately $14,400,000. The cost of facilities furnished by the Government to Westinghouse was approximately $137 million. The total cost of this F3H J–40 program to date, according to staff computations, is in excess of $200 million.

Mr. HOLIFIELD. What is the value of the planes that have been delivered?

Mr. MORGAN. The planes actually delivered——

Mr. HOLIFIELD. Or to be delivered.

Mr. MORGAN. I limited that figure to the planes delivered as being 56 F3H–1. There were 60 actually delivered, but of these 60, 4 were converted to prototype 2–N's. Therefore, that cost was charged against the 2–N program which we have not totaled up. But on the F3H–1N, the 56 models actually received, including the spare parts, would be approximately $78 million. That is just for the airframe alone.

Mr. HOLIFIELD. Not the engines?

Mr. MORGAN. Not the engines. If you include the engines delivered under production contract, it would be approximately $120 million. This does not include the termination costs. Again the total cost, including development contracts, production contracts, actual deliveries, and termination cost for the whole program of the F3H–1N and the J–40 engines is in excess of $200 million.

Mr. HOLIFIELD. Now, you gave us a figure of $137 million for facilities. What becomes of those facilities under the termination contract? Did the Government recover those facilities for which they put up the money, or do those faciilites remain in the hands of the McDonnell Aircraft Co.?

Mr. MORGAN. It is our understanding that the facilities will remain in the hands of Westinghouse. They hold a lease agreement on their building at Kansas City with the Government. These facilities can be reused by Westinghouse on future production or development contracts that they may have with the Navy or the Air Force.

Mr. HOLIFIELD. Well, was this in the nature of a loan to Westinghouse to build these facilities?

Mr. MORGAN. These facilities were already built at the time Westinghouse moved in.

Mr. HOLIFIELD. Were they owned by the Government?

Mr. MORGAN. They are owned by the Government. The facilities were used by Pratt & Whitney during World War II, I believe.

Mr. HOLIFIELD. Then are they leased to the Westinghouse people?

Mr. MORGAN. They are leased—the building itself is leased to Westinghouse.

Mr. HOLFIELD. Were there facilities contracted for, machinery, that went into it also?

Mr. MORGAN. There were machinery and tooling contracts for the equipment that was used in this program.

Mr. HOLIFIELD. Are those facilities now being used by Westinghouse or are they idle?

Mr. MORGAN. Westinghouse at Kansas City is practically idle, you might say. They have no production contract with either the Navy or the Air Force to my knowledge right now. They are conducting a development program at their own expense at this time on a new jet engine that they hope to be able to sell to the Navy or the Air Force.

Mr. HOLIFIELD. But it is your impression that the majority of this equipment is now idle?

Mr. MORGAN. Yes, sir.

Mr. HOLFIELD. And the $137 million figure which you gave us includes brick and mortar and machinery, does it not?

Mr. MORGAN. Yes, sir.

Mr. LIPSCOMB. Mr. Chairman.

Mr. HOLIFIELD. Mr. Lipscomb.

Mr. LIPSCOMB. Mr. Morgan, were these facilities in existence when Westinghouse received their contract for these engines, or are these new facilities?

Mr. MORGAN. The brick and mortar, the actual building itself, was in existence at the time, but Westinghouse was not in this plant at the time they received the development contract. They were at the time they received the production contract.

Mr. LIPSCOMB. Well, was a part of this $137 million invested prior to the time Westinghouse got the contract on these engines?

Mr. MORGAN. That is possible, Mr. Lipscomb, and then it was charged to this particular facilities contract with Westinghouse. I say it is possible, because we cannot give you an answer on that since we didn't explore that phase. The Navy or Westinghouse could furnish us that answer.

Mr. LIPSCOMB. Is it possible that the whole $137 million would not be charged to the Westinghouse contract?

Mr. MORGAN. It is possible since it can be reused. That $137 million was not included in our computations for the total cost for the total program, which was the $200 million figure.

Mr. HOLIFIELD. I was under the same misapprehension. I thought the $137 million was included in the $200 million figure.

Mr. MORGAN. No, sir; that is not included.

Mr. HOLIFIELD. Mr. Eckhart, what have you found out about the adequacy of the Westinghouse research and development facilities?

Mr. ECKHART. When the development contracts were let with Westinghouse, the engine development took place at the Essington plant, which is in Essington, Pa., about 15 or 20 miles outside of the city of Philadelphia. After the development contracts had been let and some progress had been made, Westinghouse entered into a lease agreement with the Navy for the plant you just discussed. This was in the latter part of 1948. This plant is at Kansas City and is referred to as the gas-turbine division of Westinghouse Electric. This plant was used by Pratt & Whitney during the war years to manufacture reciprocating engines.

Under lease agreement with the Government, Westinghouse moved in there in the early part of 1949 and set up production lines. The production of the jet engines was concentrated at the Kansas City plant while the research and development facilities remained at Essington, Pa. Toward the end of the contract, about the middle of 1954, Westinghouse began a movement of their research and development laboratories from Essington to the Kansas City location, and I believe that this move has been completed now, or will be completed very shortly.

Mr. HOLIFIELD. Is there any evidence that inadequate facilities might have had some bearing on the failure of Westinghouse to develop and produce a serviceable engine?

Mr. ECKHART. Yes, sir; there is some evidence on that.

Mr. Smith, who is the general manager of the gas-turbine division of Westinghouse at Kansas City, indicated that there could have been some relationship between the absence of proper testing facilities at the Kansas City plant and the failure on the part of Westinghouse to successfully produce the J–40 and J–46 engines. As far as some of these facilities are concerned, Mr. Chairman, we noted in the House appropriations hearings about a year or so ago, the Navy proposed to pay $25 million for the transfer of these facilities from Essington to Kansas City, and that the Westinghouse Co. was to contribute about $12 million. I cannot confirm those figures, but the Westinghouse management in our conferences with them did indicate that they were prepared to spend about 10 or 12 million dollars to better their research and development and testing laboratories there at the Kansas City plant.

Mr. HOLIFIELD. That they were prepared to do this in the future?

Mr. ECKHART. No, sir; that that is underway now.

Mr. HOLIFIELD. That is underway?

Mr. ECKHART. Yes.

Mr. HOFFMAN. Mr. Chairman.

Mr. HOLIFIELD. Mr. Hoffman.

Mr. HOFFMAN. What does the contract provide as to the furnishing of facilities? Was Westinghouse to do it or the Navy to do it?

Mr. ECKHART. That actually went back to the lease, Mr. Hoffman. The contract was let to Westinghouse for research and development at the offices in Pennsylvania. After some research and development had been done on these engines, then Westinghouse negotiated with

the Government for the old Pratt & Whitney plant out in Kansas City, and after the research and development work had been done on the engines and they were ready to go into production, then they moved out to the Kansas City plant and set up their facilities there. Whether or not there was a very direct relationship between the research and development contract and the leasing of this plant from the Navy, I cannot say. It might have been.

Since 1946 or some earlier date Westinghouse was interested in improving its production facilities in the gas jet engine field. But we do know that, after Westinghouse moved into the Kansas City plant, the Government did provide them with the machine tooling and the facilities that were present at Kansas City, and they did total approximately $137 million.

Mr. HOFFMAN. My understanding is that in answer to question 34 you expressed the opinion that facilities were not adequate. Who was obligated in this deal to furnish adequate facilities?

Mr. ECKHART. In talking about adequate facilities, I was referring to the research and development facilities of Westinghouse and not the production facilities. The Kansas City plant was the production facility. The research and development was all in Pennsylvania. From the statement of Mr. Smith, the general manager of Westinghouse, I would assume that it was incumbent upon them to supply the necessary facilities, since they indicated that they could have had better facilities. I think, Mr. Congressman, that it might be proper to query the Westinghouse people on that. I am just repeating the statement made to us by the general manager of the plant in Kansas City.

Mr. HOFFMAN. I understood you to express the opinion that both research and development facilities were inadequate. Under the contract, who was to supply those, the Navy or Westinghouse, both of them or what?

Mr. ECKHART. It is not clear from the information that we have, Mr. Hoffman.

Mr. HOFFMAN. What is that?

Mr. ECKHART. It is not clear from the information we have as to whether or not the Navy was going to supply them with research and development facilities. Westinghouse was in the business of manufacturing jet engines and did, in fact, manufacture a very successful jet engine prior to the letting of the research and development contracts for these engines that we are speaking of here. I would rather not make this statement, but I would assume that the Navy probably believed that Westinghouse did have adequate research and development facilities at the time that the research and development contract was awarded to them on the basis of their performance in this area on the J–34 engines which had been manufactured successfully by Westinghouse before the J–40 came into the picture.

Mr. HOFFMAN. If anyone was, who was responsible for furnishing these research and development facilities? I suppose that Westinghouse was to manufacture the engines, but who was to do the research?

Mr. ECKHART. The research was to be done by Westinghouse, and I would assume that Westinghouse was responsible to have adequate research and development facilities.

Mr. HOLIFIELD. Have Navy officials or anyone else expressed to you at any time the comparative investment of Westinghouse and other

aircraft manufacturers in laboratory or development or experimental facilities?

Mr. ECKHART. We have received some information on the comparative investment by aircraft engine manufacturers in development facilities. There are actually only five major producers of jet engines in the United States: Pratt-Whitney, Curtiss-Wright, General Electric, the Allison division of General Motors, and Westinghouse Electric Corp. It was indicated to us by Navy officials that Westinghouse was the least aggressive in investing in development facilities. It is understood that the Allison division of General Motors is planning and expenditure of approximately $75 million to set up additional laboratory and research facilities. I don't mean to suggest that this $75 million is adequate. The other companies may have spent more or less. I think this is a point that could be developed a little bit further with Navy witnesses.

Mr. HOLIFIELD. Now, the Allison engine, as I understand it, is scheduled now to be used in the F3H airplane. Is that the XF3H or the F3H that you have on the board there?

Mr. MORGAN. The J–71 engine is being fitted into the F3H. That is the production model. That would be with the suffix 2N, F3H–2N, which received that designation at the 61st production number. The Navy authorized the installation of the J–71 after they had determined that the J–40 engines which they had been using in these planes was insufficient to power them.

Mr. HOLIFIELD. Is it contemplated, then, that an Allison engine will be used or back-fitted, as the term is, in the 26 frames that are standing on the ramp there, instead of the J–40 engine?

Mr. ECKHART. The information that we have, Mr. Chairman, is that the J–71 engine is going to be installed in production model 61 and all of those following. Of the first 60 F3H–1N, we have been advised by the Navy that they expect to retrofit some of those and to install the J–71 engines in those planes also.

Mr. HOLIFIELD. What was the reason why they would not be installed in all of the frames?

Mr. ECKHART. We understand there is some difference between the first 30 models of the F3H–1N and the second 30, from 31 through 60, of the F3H–1N.

Mr. HOLIFIELD. In other words, the Allison engine will not fit in the first 30 without excessive cost; is that true?

Mr. ECKHART. We understand that the Navy has received some figures on the cost which have not been made available to the committee, Mr. Chairman, on what it would actually cost to refit the first 26 vis-a-vis the second 26.

Mr. HOLIFIELD. We can take that matter up with the Navy when they come to the stand.

When was the decision made, as far as you know, to install the J–71 engine in the F3H aircraft? Was it a recent development, or has it been employed for some time?

Mr. ECKHART. It is a relatively recent development. Again, Mr. Chairman, I would like to steer away from specific dates in making this presentation, but the installation of the J–71 engine into the F3H–2N aircraft and the 1N that was in production at the time this decision was made was recommended by the McDonnell Aircraft Corp. This proposal was made 16 months prior to the authorization

by the Navy to install the J–71 engine. At the time of the proposal to install the J–71 engine, an authorization by the Navy, apparently this engine also was in difficulty. Approximately 16 months after the authority by the Navy to install the J–71 engine in the aircraft, according to a press release that was made by the Department of Defense, they indicate that one contract was being severely cut because of the difficulties with both the J–46 engine and the J–71 engine. So actually, in terms of time, 3 years after the initial suggestion to install the J–71 engine in the F3H aircraft the engine was still in difficulty.

Mr. HOLIFIELD. Did I understand you to say that the J–71 is also having trouble?

Mr. ECKHART. Since the decision was made to put the J–71 engine into the F3H aircraft, approximately 14 of these planes have been produced by McDonnell. After they came off the production line they went through a series of tests by the manufacturer and were then turned over to the Navy for additional testing. There are probably some reports on the performance of the F3H–2N plane with the Allison J–71 engine, but we have not received any reports by the Navy on the performance of this plane, and I suppose that we can assume that it is performing satisfactorily.

Mr. HOLIFIELD. Did I understand you right? You say you can assume that it is.

Mr. ECKHART. We haven't read anything to the contrary or been supplied with any information to the contrary, Mr. Chairman.

Mr. HOLIFIELD. Do your records of aircraft accidents show that there were any planes equipped with the J–71 engine which crashed or were engaged in accidents?

Mr. ECKHART. I am going to refer that to Mr. Morgan, the accident man.

Mr. HOLIFIELD. Mr. Morgan?

Mr. MORGAN. Yes, sir. There have been three airplanes lost in crashes that have had the J–71 engine as a source of power. The first of these occurred in February of this year and was 1 of the 4 F3H–1N's that were converted to prototypes of the 2N. In this crash the cause could not be definitely determined, but it was thought that it was possibly pilot incapacitation. In the latter 2 crashes, these 2 have occurred since the beginning of our investigation. One of these occurred the day after we were in St. Louis. It was on a test flight. A McDonnell pilot bailed out while testing the airplane and the plane continued to fly for several hundred miles and finally crashed in Iowa and burned.

According to a newspaper story, recently there was a midair collision over the Eastern Shore of Maryland in which an F3H–2N airplane was involved. The F3H–2N still is undergoing certain tests by the Navy and it might be that this latter crash was involved in testing. This point has not been cleared up by the Navy at this time. But we might ask the Navy about this latter crash later on in the hearing.

Mr. HOLIFIELD. Does your information show that the decision to install the J–71 engine was part of a long-range program or was it an expedient to fill up the remaining F3H airplanes which were on contract with McDonnell?

Mr. MORGAN. Originally we were told that it was a backfit or a backup—not a backfit, but a backup engine to the J–40 in the hopes that they could get one of these engines to perform satisfactorily or to get

a successful engine out of the two sources, Westinghouse and Allison. If the Westinghouse engine had turned out satisfactorily, they would have used the Westinghouse engine or the Allison. They had an option. It might be said that this was possibly a long-range plan on the J–71, since we note that the J–71 is going into some other aircraft.

Mr. HOLIFIELD. Are there any questions at this time from other members of the subcommittee?

Mr. RIEHLMAN. Mr. Chairman.

Mr. HOLIFIELD. Mr. Riehlman.

Mr. RIEHLMAN. I would like to ask Mr. Morgan if there were any extensive alterations to be made in the frame when the J–71 engine was to be used?

Mr. MORGAN. Yes, sir. There were some modifications to the airframe to make it suitable to install the J–71.

Mr. RIEHLMAN. Do you have any idea what the cost would have been?

Mr. MORGAN. We don't have that actual cost, but we were told by the Navy that this was a nominal cost. What their interpretation of "nominal" is, I can't answer.

Mr. RIEHLMAN. Would it appear to you, then, due to the fact that some alterations have had to be made, this could have been a long-range program on the part of the Navy?

Mr. MORGAN. Yes, sir. I would say, in my opinion, it would have been a long-range program.

Mr. HOLIFIELD. Any further questions? Mr. Hoffman?

Mr. HOFFMAN. I understood you to say that five companies were making jet engines; is that correct?

Mr. ECKHART. Yes, sir.

Mr. HOFFMAN. Is it or is it not true that the engines made by all of these companies when flight tested have been followed by crashes and accidents, bailing out of the pilots?

Mr. ECKHART. I don't have any specific information on the history of the difficulties with the other engine manufacturers.

Mr. HOFFMAN. No effort was made to ascertain whether the other engines had failed, nor how many failures there had been, nor the percentages as compared with Westinghouse?

Mr. ECKHART. No attempt was made to go into that because we wanted to restrict this hearing to J–40 Westinghouse program, J–40 Westinghouse engines, which were related to four other aircraft programs. We had the F3H, which we discussed here. We had the F10F, which was another Navy fighter. We had A3D, which was a heavier attack plane, and the F4D. We did do work in finding out whether or not these J–40 engines were responsible for having any of the airframe programs for those other three aircraft cut back. But it was impossible. Had we checked with the other five engine manufacturers to be able to get sufficient information on all of those to be able to hold a hearing at this date, Mr. Hoffman, or even at some immediate distant date—

Mr. MORGAN. Mr. Hoffman, if I may add a comment to my colleague's statement, we did ask the Navy if this was an unusual number of incidents or difficulties on a development engine of this type, and while they said it wasn't unusual to have problems, all of them had their problems, in this case it was a little unusual and a little outstand-

ing in that the problems were probably greater than they usually encounter.

Mr. HOFFMAN. Did they give you any percentage so you could compare with the manufacturers of other engines?

Mr. MORGAN. They didn't give us a percentage. We took their statement.

Mr. HOFFMAN. A broad general statement?

Mr. MORGAN. Yes, sir.

Mr. ECKHART. To our knowledge, the Westinghouse J–40 engine is the only engine that has been grounded. No planes equipped with that engine are authorized to fly right now.

Mr. HOFFMAN. That engine that was made down in Philadelphia, didn't they ground a lot of them during the war?

Mr. ECKHART. They were not jet engines.

Mr. HOFFMAN. But they were engines in planes. Haven't they all had trouble?

Mr. ECKHART. Yes, sir.

Mr. HOFFMAN. Aren't they having trouble today?

Mr. ECKHART. All of the jet manufacturers are having difficulties.

Mr. HOFFMAN. Before we had the jet, did you run across the information that a subcommittee of this committee had turned up in 1948 that the Pratt—who manufactures the Pratt & Whitney engine——

Mr. ECKHART. Pratt & Whitney.

Mr. HOFFMAN. That they were being allowed to produce engines that the Government did not need because they wanted to keep a company in business?

Mr. ECKHART. We did not run across that information.

Mr. HOFFMAN. Or how much money was spent on that?

Mr. ECKHART. I do not know.

Mr. HOFFMAN. The chairman will recall that we had something like that.

Mr. HOLIFIELD. I don't happen to recall that. I don't see how it is pertinent to this investigation. We will be glad to have anything pertinent spread on the record.

Mr. HOFFMAN. The Government is spending money continually for the development of engines and aircraft for them and it is not unusal for some money to be wasted, regrettable as it may be.

Mr. HOLIFIELD. I am sure the gentleman would not condone the wasting of $200 million. The gentleman does not mean to condone the wasting of $200 million and indicate that it is improper for this committee to inquire as to why it was wasted.

Mr. HOFFMAN. Not even $2.

Mr. HOLIFIELD. If there are no further questions, the committee will go into executive session, and ask the visitors and the press to leave the room, and the Navy and their witnesses will remain at this time in executive session.

Mr. FOGLER. Mr. Chairman, I am Raymond Fogler, Assistant Secretary of Materiel. I am here representing Secretary Thomas. I respectfully request that a brief statement which I have and a more detailed statement which Admiral Russell has be given in open hearing now.

Mr. HOLIFIELD. The chairman will decline to grant that at this time. We are going into executive hearing to discuss the areas of

security which the committee members can question on, and there may be items in your statement which——

Mr. FOGLER. There are no classified items in our statement.

Mr. HOLIFIELD (continuing). Which the committee may want to question at some length, and it may run into security questions. So at this time, sir, we are going into executive session and immediately following the executive session, we will give you a chance to give such statements as you have prepared.

Mr. FOGLER. It seems to me——

Mr. HOFFMAN. In view of that statement, I will on my own responsibility, if they desire, give those statements to the press. I will give them out.

Mr. HOLIFIELD. That is all right with me. If the gentleman of the subcommittee does not want to cooperate with the subcommittee, he has that liberty to do so on his own responsibility.

Mr. HOFFMAN. I will be glad to cooperate.

(Whereupon, at 11:25 a. m., the subcommittee went into executive session.)

AFTERNOON SESSION

Mr. HOLIFIELD. The subcommittee will be in order.

During executive session we had testimony from Secretary Fogler and Rear Admiral Russell and some of his staff. At this time, Mr. Secretary, will you and Admiral Russell come to the witness table for a moment.

It is the Chair's understanding that your statement, Mr. Secretary, and your statement, Admiral Russell, have been released to the press; it that true?

Mr. FOGLER. That is true, yes.

Mr. GARMATZ. Mr. Chairman, if that is the story, that the Secretary's statement and Admiral Russell's statement have been released, I don't see why we can't go into open session and start questioning either the Secretary or the admiral.

Mr. HOLIFIELD. The committee has heard the Secretary's statement read and Admiral Russell's statement read. They have been released to the press.

In order to conserve time, we will not go through the formality of reading these statements, but at this time I will ask you gentlemen to take the oath.

Do you swear that the testimony that you are about to offer to this committee will be the truth, the whole truth, and nothing but the truth, so help you God?

Mr. FOGLER. I do.

Admiral RUSSELL. I do.

Mr. HOLIFIELD. And do you at this time offer the two prepared statements which you have released to the press and which you have read to the committee in executive session?

Mr. FOGLER. We do.

Mr. HOLIFIELD. They will be accepted.

(The statements referred to are as follows:)

STATEMENT OF HON. RAYMOND H. FOGLER, ASSISTANT SECRETARY OF THE NAVY (MATERIAL)

I appreciate the opportunity to appear before this subcommittee with my associates from the Bureau of Aeronautics of the Navy. Certainly there are times when hearings of this type can assist greatly in bringing about better understanding of important problems. This is particularly true when the problems are continuing in nature, and even more true when continuing problems present the great difficulties and complexities which are involved in procuring new, high-performance planes and weapons, and in introducing them into the fleet. I hope this hearing proves to be mutually helpful and enlightening.

My prepared statement will be brief, because Rear Adm. James S. Russell, Chief of the Bureau of Aeronautics, has prepared and will present to you detailed information in regard to the actions taken by the Navy in respect to the J40 engine and the F3H aircraft. I understand that representatives of the Westinghouse Electric Corp., the manufacturer of the engine, and the McDonnell Aircraft Corp., the manufacturer of the airframe, will also make statements.

In 1947, at the time the developmental contract with Westinghouse was made, the action was completely logical and objective on the basis of the capability previously demonstrated by Westinghouse. Similarly, when the contract for the first experimental version of the plane was made with McDonnell in 1949, it too was entirely reasonable in view of the fine record of their earlier plane, the Navy Banshee.

Later, contracts for substantial quantities of engines and planes were made during a period of great emergency at the height of the Korean war. At that time, the country was engaged in a war of limited scope, but there was always, as you well know, the possibility that the conflict might be greatly extended. Important also, to keep in mind, is the fact that these contracts were placed with known and capable producers. Admiral Russell will amplify these statements in his testimony.

A question which we all should ask is this: What has been done to minimize the risks involved in obtaining early delivery of high-performance planes in the quantities needed by the fleet?

In answer to this question, I can assure you that the Navy has worked very hard to develop a plan to avoid large premature purchases and at the same time to permit early introduction into the fleet of new and improved planes. This plan, which is called fleet introduction of replacement models, will be explained by Admiral Russell and members of his staff. In brief, it is a plan which provides for more thorough testing and evaluation of new aircraft before orders are placed for large quantities of planes.

In this connection, however, it would be misleading to suggest that we can ever completely avoid the types of problems illustrated by the F3H, for several reasons:

First, we must all accept the fact that aircraft programs inescapably stretch out over several years.

Second, engine and major electronic programs also stretch out over a period of years.

Third, each key decision made on any aircraft or engine program affects that program for years thereafter.

Those facts have long been true, and they will continue to be true. We can never afford to be satisfied. What we can do is constantly seek for solutions to each problem and also seek better ways of handling all these matters. That we have done, and that we will continue to do.

You may have questions regarding the contract terminations involved in these cases. We plan to discuss these terminations in detail and we have brought Mr. Crickenberger and others who are thoroughly familiar with them. I am sure, however, that termination questions can be answered much more intelligibly after Admiral Russell has finished describing the detailed sequence of events.

I remind you that the difficulties which we now experience occurred because a calculated risk was taken at a time of national danger following a period of great reduction in the armed services and of greatly reduced defense expenditures before the Korean war.

When the Korean war began, the people of the country, directly and through their representatives in Congress, were urgent in their demands that everything

possible be done to meet any eventuality. The situation which then existed is almost impossible to re-create in this room today, but I am sure everyone here remembers the great concern which we all felt at that time in our universal desire to give to our fighting forces as rapidly as possible the best weapons and materials which could be procured. It is imperative that we all have this background in mind throughout this hearing.

Even now, during a period when we fortunately are at peace, we must face the fact day by day that many positive decisions must be made, and many bold actions taken, which involve very serious risks. Time will undoubtedly show that some of these decisions and actions did not achieve the improvement in weapons which we had sought, because we are in an age of rapidly advancing technology, and because we are trying to reach into the area beyond man's knowledge. We must, though, make these decisions and take these actions, with all the risks they involve.

In making these important decisions, men of vision, ability, experience, and courage must feel free to decide and to act with assurance that later, when history has proved their decisions right or wrong, there will be understanding of the risks they assumed and the circumstances under which they acted.

In conclusion, gentlemen, if the day ever comes when our decisions and actions are determined by hesitancy, doubt, and fear, the danger to the Nation will be incalculable.

The detailed presentation will be made, as I have previously told you, by Rear Adm. James S. Russell, who was appointed Chief of the Bureau of Aeronautics by the Secretary of the Navy on March 4, 1955.

In presenting Admiral Russell to you, it is a pleasure to tell you that he has brought to the Bureau unusual knowledge and experience, and positive, dynamic leadership. I am confident that Admiral Russell's appointment assures that all of the Bureau's responsibilities will be handled with the very high standard of performance which has characterized his entire naval career.

STATEMENT OF REAR ADM. JAMES S. RUSSELL, CHIEF, BUREAU OF AERONAUTICS, UNITED STATES NAVY

I beg your indulgence in reviewing with me, factually, and in such detail as is necessary, the story of the F3H–1 aircraft. In so doing, I should like to retrace in time the events leading up to the manufacture of this airplane and the model's subsequent history.

In 1947, the year in which the contract for the J40 engine was awarded to the Westinghouse Co., naval aviation was just beginning to set sail in the jet age. At that time, we had flying a limited number of jet aircraft, but they were by no means deployed throughout the fleet. In addition to the aerodynamic problems introduced by this new type of aircraft, one of the controlling factors in their more extensive use was the availability of jet engines. The aircraft flying in the fleet at that time were powered by engines of a maximum thrust of about 4,000 pounds. Even with our then limited experience, it became obvious that, for a truly useful article, more thrust would be required. In an effort to satisfy this requirement, the Bureau of Aeronautics went to industry and requested proposals for new aircraft engine developments. The engine chosen from among the resulting proposals was the J40, a design submitted by the Westinghouse Electric Corp. which offered a number of advantages over others in terms of time, cost, and performance. An additional factor which weighed heavily in the decision to select the Westinghouse design was the eminent position occupied by the company as the designers and developers of the first successful axial-flow turbojet engine, a feature which is now being used in all modern high-performance jet powerplants.

I would like to digress briefly to confirm the above statement in more detail.

At the outbreak of World War II, and within a week of Pearl Harbor, Westinghouse, in contract with the Navy, had established the nucleus of their present organization and had commenced work on the first turbojet engine of American design. This engine, appropriately named the "Yankee," was qualified within 18 months and later went into production to power the McDonnell Phantom, a twin-jet Navy fighter which made a historic milestone when it equipped our earliest carrier-based jet fighter squadron.

In June of 1944, Westinghouse received a contract for the development of a new engine; the J34, and within a year this engine was running—flew in 2½ years—and was qualified and in production 3½ years following its inception.

An afterburning version of this engine became the first augmented thrust turbojet to pass military qualification tests; 4,560 J34 engines have been built and have operated successfully in several applications, the most important of which is the McDonnell F2H Banshee, currently in the fleet in large numbers.

My previous experience with these Banshees bears repeating: prior to reporting to the Bureau of Aeronautics, I had the honor to command a division of aircraft carriers in the evacuation of the Tachen Islands, off the coast of China. This operation required fighter cover airborne over the evacuation force 24 hours a day for the 6 days during which our amphibious ships worked the beaches within range of Communists' guns and aircraft. In this 24-hour fighter patrol, it was the all-weather Westinghouse-powered, Banshee fighter which flew throughout the night.

I present these facts to support the Navy's judgment in authorizing Westinghouse to proceed with the design of the J40 engine in June of 1947; a move which marked a most significant step forward in the technological field of turbojet development since other engines in this thrust class were not started until approximately 18 months later.

In December 1948, Westinghouse had gained sufficient developmental experience with the engine to enable them to offer firm specifications on their product. They promised the delivery of 1 version of the engine, termed the –8, in approximately 20 months, and an advanced version of higher thrust in approximately 30 months.

Shortly thereafter, the Navy held a competition within the aircraft industry for an all-weather interceptor fighter, an aircraft of limited fuel and combat radius, with emphasis placed on very high performance for short periods of flight.

In such a competition, the Bureau of Aeronautics issues a list of engines which the competing contractors may utilize in their design proposals. The winner of this competition was the McDonnell Co., the same concern, you will remember, which was then producing the very successful Banshee. McDonnell elected to use the J40 engine and a letter contract was awarded to them in July 1949 for 2 experimental F3H–1 aircraft powered with the J40–8 engine. To demonstrate how favorably this engine was received by the aircraft industry, I should like to point out that during the period to which I refer, two other Navy contractors had selected the J40 for installation in their new designs. These were the Douglas F4D–1, an experimental interceptor fighter which later won the world's speed record, the Douglas A3D–1, a heavy attack plane, and the Grumman F10F, an experimental general purpose fighter designed to have all-weather capability.

As the development of the F3H–1 and its J40 engine continued, our requirements dictated that we reexamine the original concept for two reasons: first, the F4D showed promise of exceeding the performance of the F3H as an interceptor, and secondly, the development of the F10F was lagging to the point that it was becoming increasingly apparent that it could not meet the immediate need for a general purpose fighter. This examination indicated that the basic F3H airframe would carry additional fuel and equipment and could thereby meet the general purpose requirement provided an engine of higher thrust was available. Accordingly, we began seriously to consider the improved version of the J40–8 engine, being developed by Westinghouse as a means of obtaining this additional thrust. This advanced engine was known as the J40–10 and promised the required additional power, although its estimated availability was somewhat later than that of the –8.

In January 1951, approximately 6 months after the start of the Korean conflict, the decision was made to modify the design of the F3H to meet the general purpose all-weather fighter requirement and order it in production quantities together with the J40–10 engine. This production order was placed in March of 1951 and included 150 aircraft. At about the same date, the non-after-burning J40–8 engine had passed its flight rating test, and the afterburning version was only 3 or 4 months behind schedule. Further, despite earlier developmental delays experienced with the –10 engine, this improved design was progressing normally at the time of the decision.

Late in the summer of 1951, the experimental F3H–1 began to fly and we were soon convinced that we had an excellent airframe. One of the major points of satisfaction was its excellent flight characteristics as it went through the sound barrier; a marked achievement in those early days of swept-wing aircraft. Unfortunately, as we began to be assured of a superior airframe, the development of the –10 engine experienced serious difficulty. By December of 1952, West-

inghouse was convinced that they had been too optimistic and could not achieve their original goals. In retrospect, it is evident that the problems developed gradually and did not follow a set pattern. As a result, no one date in the sequence of difficulties is of unique significance. Problem compounded problem, and solutions seemed so distant that we started looking for a suitable replacement for the J40 engine. Two alternatives appeared possible: the Allison J71 and the Pratt & Whitney J57, both of which had been developed subsequent to the original J40. Utilization of either, however, required major modification to the airframe or to the engine. To complicate further our decision, Air Force commitments for both engines were so heavy as to make immediate procurement doubtful and any major modification to either engine entirely unfeasible.

During 1952, both the Bureau of Aeronautics and McDonnell made intensive studies of the use of an alternate engine in the F3H–1 and eventually came to the joint conclusion that the J71 offered distinct advantages over the J57, for this installation, from the standpoint of availability, cost, and required airframe redesign. Accordingly, when the basic J71 engine passed its flight rating test late in 1952, a Navy configuration of the engine was ordered for use in an improved version of the aircraft to be designated the F3H–2. A major problem remaining was the point in production of the airframe to effect most economically this engine change.

By this time, the first production F3H–1 had flown and there were some 15 fuselages assembled on the production line with others following in various stages of subassembly. Obviously, there were two courses which could be followed: (1) To direct the contractor to refabricate all fuselages so as to accommodate the J71 engine, or (2) to make provisions and install the J71 engine in the earliest possible airframe at no loss in production. The latter course was adopted and the effectivity point of the change was established at the 61st aircraft. At this time the Westinghouse J40 –8 engine had been flight rated, and the production version of the –8, the J40 –22, was becoming available. While not of sufficient thrust fully to satisfy our revised concept, the J40 –22 would make the F3H–1 operable with reduced performance. Further, the possibility remained that the higher thrust –10 might still become a reality.

Our plans, with respect to the first 60 aircraft, were twofold: First, the contractor, McDonnell, could use about 17 for a major portion of his test program, flight demonstrations and carrier trials, thereby reducing substantially the time required to introduce the F3H–2, and secondly, the remainder could be gainfully employed as an early training vehicle for pilots going to squadrons to be equipped with the J71 powered F3H aircraft. These plans, as you are well aware, because of delays and engine difficulties have had to be revised. While the J40 –22 engine had been flight rated for some 2 years, in actual operations it has failed to measure up. Three aircraft accidents have occurred in which the –22 engine can be blamed directly, or seriously suspected as the cause. One additional accident has occurred in which this engine was a factor. In these accidents, 3 aircraft have been destroyed and 2 pilots have been killed.

As a result of our experience, and despite the fact that contractor and Navy pilots have flown this aircraft with the J40 engine installed for some 1,200 hours, we felt it necessary in July 1955 to cease further flight operations. At that time, we had 51 aircraft fitted for J40 engines; of the original 60, 4 have been converted to use J71 engines, and 5 have been lost in accidents. Of the remainder, 26 can be converted to use the J71 engine, while the balance of 25 would require such extensive modification as to make the conversion economically unfeasible.

I have given you, in a general way, the highlights of the F3H program, together with the developmental problems associated with the J40 engine. I should now like to present to you a factual summary of the contractual relationships with both McDonnell and Westinghouse which have occurred since the inception of the program. To appreciate more fully the progression of events, I must ask your indulgence in returning to the period in time at which most of the decisions were reached. This was at the height of the Korean conflict and our planes were being shot from the skies in increasing numbers. The need for a high-performance all-weather fighter was a matter of vital urgency and all possible measures were considered justified in furnishing such aircraft to the fleet.

Following the initial order for 150 production aircraft in March 1951, and under the urgency of the Korean situation the McDonnell orders were subsequently increased to a total of 528. In addition, a second source was prepared when an order for 100 of the F3H aircraft was placed with the Goodyear Air-

craft Corp. through a licensee agreement with McDonnell. Subsequent developments in the lighter-than-air field indicated that the Temco Aircraft Corp., of Dallas, offered a more suitable mobilization potential than Goodyear. Accordingly, the Goodyear contract was terminated early in 1952 and the equivalent number of aircraft were ordered from Temco. This Temco quantity was later increased to 160 aircraft.

In mid-May 1953, in anticipation of the "cease fire" in Korea and consistent with a general reduction in aircraft procurement, the Temco contract was terminated. Later, in November 1954, the McDonnell contract was cut back by 248 aircraft.

Left on contract with McDonnell are 280 F3H aircraft, 60 of which are the F3H–1's to which I have referred. Our present estimate is that these 280 aircraft, complete with engines, radar equipment, and all spares for support throughout the aircraft service life, will cost us $510,785,000, or an average of, roughly, 1.8 millions per aircraft. This is not an unusual price for a high-performance, highly instrumented, all-weather fighter which must find its target and shoot it down in total darkness or in cloud.

A parallel series of actions apply to the J40 engine—currently there are a total of 174 engines under contract for the Bureau of Aeronautics. Of this quantity, 163 have been accepted, leaving a balance of 11 to be delivered. The overall cost of the entire J40 program, including the cost of engines installed in F3H aircraft, and further including research, development, production, spare parts, and termination charges, we estimate at $105 million, an amount subject to final negotiation.

The initial reduction in J40 engine development and production took place in September 1953, leaving only enough engines on order to allow for the continuation of the flight-test and pilot-training program which I have previously outlined for the 60 F3H–1 aircraft. At the time the decision was reached to stop further flying in these aircraft, a final termination was made which reduced the quantity to its present level. Termination of additional engines was considered, but due to the advanced stage of their fabrication and assembly this would not have resulted in a saving to the Government.

A review of this series of events indicates the need for developing within the Bureau of Aeronautics certain checks and balances to prevent a recurrence of a program situation which gets so out of hand as that of the F3H–1. This need was recognized and approximately 2 years ago new procurement procedures were developed and placed in effect.

First, a sounder and more efficient method of initiating the production and introduction into the fleet of new aircraft designs has been developed. This procedure is known as the fleet introduction of replacement models, or FIRM plan. Under the FIRM plan, the Bureau of Aeronautics requires that certain demonstrations be completed by the contractor prior to the delivery of any aircraft to Navy tests and trials and that additional demonstrations be completed and evaluated prior to production acceleration and delivery of aircraft to operating commands. The purpose of these demonstrations and tests is to insure that the aircraft operates satisfactorily under all normal flying conditions, has sufficient strength and rigidity to execute with safety all required maneuvers, possesses safe handling characteristics in any condition for which flight is necessary, and has good possibilities for meeting contract guaranties and other design requirements. May I repeat that all of this is accomplished prior to the production acceleration of the aircraft, thereby insuring the adequacy of the end product prior to the commitment of large orders and corresponding dollars.

Secondly, the line-in-being concept is being rigidly adhered to whereby proven aircraft will be continued in production until a successor of more advanced design is demonstrated to be fully fleet ready.

I must be completely frank, however, and not infer to you that these revised procedures—these checks and balances—will ensure in every case in the future that all endeavors undertaken will be completely successful. In this day of rapid technological progress, we must venture into unknowns. Some of the problems to face us will be minor and conquerable—others will stagger us with their severity. Our hope and determination is to proceed objectively and confidently, but without that unwarranted optimism which has been evident in a few instances in the past.

In summary, it is my firm conviction that the corrective measures taken will provide the tools necessary to forecast development, test, and production performance with greatly increased accuracy and will ensure the constant and

orderly flow of high-performance, modern aircraft to our operating commands. To ensure that this is done is the grave responsibility of my bureau.

Mr. HOLIFIELD. At this time we will then omit a rereading in public as it has been released to the public, and we will start in with our questions of the witnesses on their statements.

At this time does anyone have a question which they wish to direct at Secretary Fogler on his testimony? Mr. Riehlman?

Mr. RIEHLMAN. Mr. Chairman, I would like to forego that for just a moment. I have some things marked, but I am not sure that I would have any at this time.

Mr. HOLIFIELD. Mr. Lipscomb?

Mr. LIPSCOMB. I would like to wait, too, sir.

Mr. HOLIFIELD. Then we will proceed to the statement of Admiral Russell. Mr. Roback of the staff will now ask some questions on your testimony, Admiral Russell.

TESTIMONY OF REAR ADM. JAMES S. RUSSELL, CHIEF, BUREAU OF AERONAUTICS, UNITED STATES NAVY, AND RAYMOND H. FOGLER, ASSISTANT SECRETARY OF THE NAVY (MATERIAL); ACCOMPANIED BY REAR ADM. R. E. DIXON, ASSISTANT CHIEF, BUREAU OF AERONAUTICS, PLANS AND PROGRAMS; COMDR. R. B. WOODHULL, ASSISTANT DIRECTOR, POWER PLANT DIVISION, BUREAU OF AERONAUTICS; CAPT. H. T. DIETRICH, ACTING CHIEF, PLANS AND COORDINATION, BUREAU OF AERONAUTICS; LT. COL. J. F. BOLT, PROJECT OFFICER, F3H, FIGHTER DESIGN BRANCH, AIRCRAFT DIVISION, BUREAU OF AERONAUTICS; W. M. CRICKENBERGER, TERMINATION SECTION, CONTRACTS DIVISION, MATERIAL SERVICES, BUREAU OF AERONAUTICS; CAPT. A. M. BLAMPIN, BUREAU OF AERONAUTICS REPRESENTATIVE, KANSAS CITY, MO.; AND REAR ADM. G. W. BEARDSLEY, ASSISTANT CHIEF, BUREAU OF AERONAUTICS, PROCUREMENT

Mr. ROBACK. Admiral Russell, in the first part of your statement, page 1, you say that the Navy went to Westinghouse and requested a proposal for an engine development.

In order to get the records of the subcommittee straight, was that the sequence; did the Navy go to Westinghouse or did Westinghouse come in with a suggestion or a recommendation to the Navy?

Admiral RUSSELL. The details of the proposal with Westinghouse was in response to our request for the development of an engine——

Mr. HOLIFIELD. May I interrupt at this time to say that in the executive session we tried to explore the areas of security. There was a little bit of fuzziness on the limitations as to just exactly what is in the security area or what is not.

Now, in the questions which are asked of the Navy, if those questions border on security or, in your opinion, are of a nature which the response thereto would violate security, I ask you at that time to just state to the committee that point, and I will also ask the subcommittee members or the staff to respect the Navy's request that that phase, that particular question, being in the area of security, that they not press the Navy on those particular questions.

We will ask, however, for those answers which the Navy deems to be matter of security; we will ask for the answers to those questions in another executive session, if it is evident that one is necessary.

Proceed, Mr. Roback.

Mr. ROBACK. Have you finished your response, Admiral Russell, to the first question?

Admiral RUSSELL. Yes.

Mr. ROBACK. You state on page 1 that the Westinghouse proposal offered a number of advantages over other proposals in terms of time, cost, and performance. Now what advantages in terms of time are understood here?

Admiral RUSSELL. The length of time to develop the engine of the proposed specifications.

Mr. ROBACK. In other words, Westinghouse proposed to develop an engine much quicker, in a relatively quicker time, than other proposals?

Admiral RUSSELL. In a shorter time than a competing concern.

Mr. ROBACK. When such proposals come to the Navy, what is the practice of your Bureau of Aeronautics? Does this go before a board or a committee and is a written document made as to the selection of the proposal?

Admiral RUSSELL. The proposals are evaluated in some detail by our engineers. They are passed upon by our production people. The decision finally, however, rests with the officer who is in my seat, which is Chief of the Bureau.

Mr. ROBACK. Are there documents in the Navy which analyze the number of proposals and which make a judgment that this proposal is the desired one?

Admiral RUSSELL. To the best of my knowledge, there are. I don't personally know of these in this case, however.

Mr. ROBACK. When you decided that Westinghouse would have this development contract, what kind of evaluation was made of their research and development facilities?

Admiral RUSSELL. That, of course, would be one of the considerations. When one receives a bid, an offer to do something, one of the things, of course, which is examined is ability to perform. Does he have the facilities, does he have the brainpower on his staff, does he have the acumen, the executive ability to carry it through? All these things are weighed at the time we receive a bid.

Mr. ROBACK. Do you have a survey document which makes judgment as to the adequacy of the facilities of Westinghouse?

Admiral RUSSELL. Whether there is a specific document or not, there is certainly an opinion expressed in the awarding of this contract to Westinghouse somewhere along.

Mr. ROBACK. As to adequacy of facilities?

Now, the statement has been made to the staff, and I believe it was stated by investigators for the staff to the committee this morning, that Westinghouse was one of the least aggressive companies with respect to investing funds for research and development. When did that understanding reach the Navy?

Admiral RUSSELL. That, sir, is a staff opinion.

Mr. ROBACK. Navy staff opinion?

Admiral RUSSELL. This was the investigator's opinion, I believe. May I ask if this is correct, of the investigators?

Mr. ROBACK. Mr. Eckhart, will you answer that question?

Mr. ECKHART. Yes; the statement that is being referred to now was taken from the appropriations hearings of 1953 or 1954, in which the Navy agreed to contribute $25 million toward better research and development facilities for Westinghouse, with Westinghouse making a contribution of about ten or twelve million.

Mr. ROBACK. But the statement as to Westinghouse being the least aggressive was made by Navy officials to the staff; is that not correct?

Mr. ECKHART. Yes, sir; that is correct. (See p. 38.)

Mr. ROBACK. Who made that statement?

Mr. Chairman, we have a transcript of the record of the conference and we can identify that, but the question that I have directed to Admiral Russell is, Did the Navy at any time or does it now understand that Westinghouse was the least aggressive in respect to investing moneys for research and development?

Admiral RUSSELL. That is a rather difficult question. I would point to the performance. Certainly their strength in research and development was represented in the product which has come out, and that product in their last two engines, in my opinion, has been rather poor. One of them, of course, is defunct.

Mr. ROBACK. You are inferring, from the failure of the end product, that the research and development facilities were inadequate?

Admiral RUSSELL. Facilities, staff, something along the line is certainly inadequate when the engine did not come out properly.

Mr. ROBACK. Do you have any information, when this research and development contract was awarded, what in the way of research facilities was represented by Government funds and what by private funds, that is, by the company's funds?

Admiral RUSSELL. I do not have detailed information on that. The staff investigators have stated, and I would corroborate, the best of my knowledge is there are about $137 million worth of Government facilities at Kansas City which are being used by Westinghouse.

Mr. ROBACK. You don't know, as a matter of fact, how much or if any Westinghouse funds were invested in the project at the time the development contract was awarded?

Admiral RUSSELL. I do not know that.

Mr. ROBACK. In the light of your statement on page 1 that the Westinghouse proposal was selected from among a number of proposals, what is the meaning of the first paragraph on page 3 in which you state that engines other than the J–40 were not started until approximately 18 months after the Westinghouse engine?

Admiral RUSSELL. This means that a project as ambitious as the one placed with Westinghouse was a little later in the other companies.

Mr. ROBACK. You have the word "started." You mean there were no designs for other engine production?

Admiral RUSSELL. A series like the J–40 series was later, and this I can explain in great detail in executive session.

Mr. ROBACK. If you had awarded a contract in research and development to 2 companies, let us say, you would not be warranted in making the statement that they were 18 months ahead of another company, would you?

Admiral RUSSELL. I don't understand the question, sir.

Mr. ROBACK. Well, you are stating here as a significant step forward in Westinghouse work and in support of the wisdom of the Navy's judgment that they were ahead of other companies by 18 months.

Now, if you had given a contract to 2 companies at the same time, would one be ahead of the other by 18 months? If you select one and tell him to go ahead, he is going to be ahead of another company; is that right?

Admiral RUSSELL. Yes. I am a little hazy on what you are driving at.

Mr. ROBACK. What is the significance of the statement at the top of page 3 that Westinghouse was 18 months ahead of other engine development work as far as the Navy is concerned?

Admiral RUSSELL. I will read that paragraph:

> I present these facts to support the Navy's judgment in authorizing Westinghouse to proceed with the design of the J–40 engine in June of 1947; a move which marked a most significant step forward in the technological field of turbojet development since other engines in this thrust craft were not started until approximately 18 months later.

Mr. ROBACK. Eighteen months earlier other companies had a piece of paper which might have been a proposal for a higher-thrust engine. Suppose they had gotten a contract. Suppose two companies, Westinghouse and General Electric, were moving along with Navy contracts at the same time, would Westinghouse have been 18 months ahead?

Admiral RUSSELL. If this contract for this thrust class engine had been awarded to another contractor, of course, this is only a supposition, but it certainly would have taken longer because no other company would venture the same time span for the development of the engine.

Mr. ROBACK. Any company with Government funds could have been working 18 months in the development of the engine. The only point of the question, Mr. Chairman, is that I can't understand that there is any significance that Westinghouse is 18 months ahead of somebody else when Westinghouse gets the contract.

Mr. HOFFMAN. Will you read that, Mr. Reporter, please?

(The reporter read back the last statement.)

Mr. HOFFMAN. Of course, that assumes that the other companies would have the same ability, go at it in the same kind of a way and pursue it with the same energy. There is no evidence that they would. As I read that statement, the Westinghouse people were just that far ahead.

Mr. ROBACK. Admiral Russell, what is your interpretation of that paragraph?

Admiral RUSSELL. It is a statement of fact, sir, that the Westinghouse Co. started in the development of this engine in this particular thrust class 18 months before another contractor did.

Mr. HOLIFIELD. But they started on that as a result of your awarding them the contract.

Admiral RUSSELL. They did, sir; yes, Mr. Chairman.

Mr. HOLIFIELD. And the point that counsel was making was that if you had awarded the contract to another company, it might just as well be said that they started 18 months earlier.

Mr. HOFFMAN. Mr. Chairman, assuming those other things, that they had the talent equal to the Westinghouse, and I assume from what he said before that they gave the contract to Westinghouse because of the previous record of accomplishments of Westinghouse; isn't that it?

Mr. HOLIFIELD. The nods will not show on the record, Admiral. Will you please answer vocally so the reporter can get the answer to Mr. Hoffman's question.

Admiral RUSSELL. I should like to read into the record facts as near as I can ascertain them from my staff.

The J–40, the engine we are talking about, was started 6 June 1947; in the equivalent thrust class later were the J–57, J–71, families of jet engines you understand, J–57 December 1948, and J–71 in April of 1949.

Mr. ROBACK. Were the other proposals from among which Westinghouse was selected, for lower thrust engines than Westinghouse?

Admiral RUSSELL. I am not fully acquainted with the situation at that time. It is my understanding that the other engines were more expensive and longer in promised time of development.

Mr. ROBACK. But if they weren't of comparable thrust, there wouldn't be any point in selecting one from among them. This would be the only one. Either there were a number of proposals from which Westinghouse was selected or else this statement here, on page 3——

Admiral RUSSELL. There were a number of proposals.

Mr. ROBACK. Now, if one of those proposals other than Westinghouse's had been selected—and, as Mr. Hoffman said, with comparable facilities and talent—they would have been 18 months ahead, so there is no specific significance in the fact that Westinghouse was 18 months ahead.

Mr. HOFFMAN. Mr. Chairman, I dislike to do this, but, as I understand it, that question now is asking about the time when Westinghouse was given the first contract—that is, at the beginning of the 18 months; is that right, Counsel? Is that what you are talking about?

Mr. ROBACK. The statement here, Mr. Hoffman, is that other engines didn't get started until 18 months later than the Westinghouse contract.

Mr. HOFFMAN. Yes; and I understand your statement, then, was if other companies had been awarded a contract 18 months before, they, too, could have been up equally.

Mr. ROBACK. That's right.

Mr. HOFFMAN. If they are proficient.

Mr. ROBACK. Right.

Mr. HOFFMAN. Was there anything to prevent the Air Corps or the Army awarding these other companies a contract to produce an engine?

Admiral RUSSELL. No, sir.

Mr. HOFFMAN. Here is what the implication seems to be, if I get it correctly: That there is something smelly about awarding the contract to Westinghouse at the time it was awarded, instead of to somebody else, or, if that isn't true, that if you had given the contract to the contractor or company A, B, and C, they would have been up in efficiency—in ability—to Westinghouse.

Admiral RUSSELL. I have devoted a great part of my statement, sir, to explaining why we considered Westinghouse a proper contractor for the development of this engine.

Mr. HOFFMAN. And that was because of the prior record of production.

Admiral RUSSELL. Development.

Mr. HOFFMAN. And efficiency.

Admiral RUSSELL. Two preceding engines of great success developed in a short time span.

Mr. HOFFMAN. And you had to make some selection somewhere.

Admiral RUSSELL. Right, sir.

Mr. HOFFMAN. Was there any indirect or direct influence brought to bear, so far as you know, to have the Navy pick Westinghouse?

Admiral RUSSELL. To the best of my judgment, this was an absolutely unbiased opinion generated through the proposals. The most advantageous one to the Government was selected.

Mr. HOFFMAN. You didn't leave the selection to chance.

Admiral RUSSELL. Not at all, sir.

Mr. HOFFMAN. You used your own best judgment at that time?

Admiral RUSSELL. That's correct, sir.

Mr. HOFFMAN. And the only trouble is, as I get it, that Westinghouse didn't come up to what had been expected.

Admiral RUSSELL. That is a matter of history.

Mr. HOLIFIELD. I don't think the record should be allowed to stand that the counsel has made any inferences that there has been anything fraudulent or smelly about this matter.

We are trying to pursue a line of questioning to determine facts based on this testimony. I certainly would not indicate that there is anything fraudulent about this contract, and I am sure the staff has never said anything to me along that line that there is anything fraudulent, so let's not put an inference on the counsel's part because I am sure he didn't intend that.

Mr. HOFFMAN. Mr. Chairman, I don't need any reprimand on that, because I haven't the slightest intention of casting any reflection on any of the counsel or associate counsel. I think they have done a most remarkably fine job in this investigation. Don't ever get into the record that I am trying anything of that kind. If I were going to make it, I would put it in direct. I wouldn't fuss around about it.

Mr. HOLIFIELD. You were the one that brought up the fact that the counsel infer that there was something smelly about it?

Mr. HOFFMAN. Sure.

Mr. HOLIFIELD. That inference wasn't in there, I am sure. Did the counsel infer that there was something smelly about it?

Mr. ROBACK. Nothing whatever, Mr. Chairman.

Mr. HOFFMAN. Let's not have any misunderstanding, Mr. Chairman. I didn't want to and don't indicate anything of that kind.

I am only stating what the facts might seem to show; don't you see? Here is somebody picked out of a group, and then there is a resultant loss amounting to millions of dollars; don't you see? Now somebody might draw the inference that there is something wrong with the Navy about it.

Mr. HOLIFIELD. Proceed, Mr. Counsel.

Mr. HOFFMAN. I hope counsel would just remember that I am not in any way reflecting upon your ability, your integrity, or your purpose.

Mr. ROBACK. Thank you, Mr. Hoffman.

Admiral Russell, in the second paragraph, page 3, you state that Westinghouse in December 1948 had gained sufficient developmental experience. How did the Navy know that? Do you state that as a fact, or is that what the Navy understood it to be, or is that what Westinghouse thought it to be? Do you understand my question?

Admiral RUSSELL. I do, indeed, sir. It is the opinion of the Navy at that time, and undoubtedly it was the opinion of Westinghouse, too.

Mr. ROBACK. You say that they had sufficient developmental experience to enable them to offer firm specifications on their product. What do you mean by "firm specifications," and what product are you talking about?

Admiral RUSSELL. Specifications on a jet engine, one of the dash numbers as was explained by the staff on the board this morning.

Mr. ROBACK. One single version of the J–40?

Admiral RUSSELL. Right.

Mr. ROBACK. When you say "product," you are referring to an item and not necessarily to a production?

Admiral RUSSELL. A jet engine I refer to.

Mr. ROBACK. In the developmental sense.

Admiral RUSSELL. Yes.

Mr. ROBACK. In the second sentence of that paragraph you are talking about one version of the engine termed the –8, and then an advanced version. What version are you referring to when you say "an advanced version"?

Admiral RUSSELL. I am referring to the –10 and the production version of that which would have been the –24.

Mr. ECKHART. Mr. Chairman, at this point may I have permission to clear up the record on a previous point?

Mr. HOLIFIELD. Mr. Eckhart.

Mr. ECKHART. I would like to ask of Admiral Russell whether it is permissible to read a couple of sentences from this conference. It is a confidential document, but it bears directly on the ability of Westinghouse facilities.

Admiral RUSSELL. The date on that, please?

Mr. ECKHART. This is the staff conference.

Mr. HOLIFIELD. Will you please have one of the staff members show him that? Will you walk down there and show him the sentences that are involved?

Mr. ECKHART. Mr. Chairman, I have conferred with Admiral Russell out of the hearing of the members of the committee, and discussed two sentences out of this confidential document. He has given his permission to have them read into the record.

The statement was made by Commander Woodhull at the time the staff was conferring with him at the Bureau of Aeronautics on September 28 in the afternoon.

Mr. BALWAN. Were you present then, Mr. Eckhart?

Mr. ECKHART. Yes, sir; I was present; and I asked this question, speaking of Westinghouse:

They manufacture at the Kansas City plant?

Answer by Commander Woodhull:

No; this was done at Philadelphia. Kansas City is really new, relatively new. They have made J-34's there, but their engineering was up at Philadelphia. Their engineering capacity was not enough. There was a concurrent J-46 program that was underway. It is quite an engineering task to develop the basic engine.

And he goes on, and in the next page here I asked a question:

But you think they had the plant facilities and personnel at Kansas City?

Commander Woodhull's reply:

Of all major manufacturers, Westinghouse has been the least aggressive in putting in test facilities and things like that. We provided them with some facilities up at their Essington plant.

I read that to clarify the record, Mr. Chairman.

Mr. HOLIFIELD. Proceed, Mr. Roback.

Mr. FOGLER. Mr. Chairman, may I make a comment? I think there is a time element that should be considered here.

At the time Admiral Russell is making the statements which we are considering, that was in 1947 and 1948, and this statement I am quite sure—and we would have to check that with Commander Woodhull—was made in view of what was learned much later and doesn't refer necessarily to Westinghouse facilities or capabilities in 1947 or 1948.

Mr. HOLIFIELD. If that be true, Mr. Secretary, is it not part of your duty in granting contracts to first bring in a facilities report in order to justify the letting of a contract?

Mr. FOGLER. That is true, Mr. Chairman.

Mr. HOLIFIELD. Would this indicate then that you did not bring in at that time an adequate survey of the facilities?

Mr. FOGLER. I think Admiral Russell can handle that better than I can, but we do have to keep our own time elements in the right perspective.

Mr. HOLIFIELD. I certainly recognize that, but if your remark is pertinent, sir, it would indicate that enough care was not given to the facilities survey at the time of the letting of the first contract.

Mr. FOGLER. It seems to me that is not true, sir.

Mr. HOLIFIELD. Explain it, please. I don't want to put you in a false light. I thought I understood you.

Mr. FOLGER. Admiral Russell is very anxious to speak.

Mr. HOLIFIELD. Admiral Russell.

Admiral RUSSELL. At the time this development work was started, Westinghouse was at the forefront of the field of the jet-engine business. They had their plant at Essington and we set them up at Kansas City. We set them up in a Government-owned plant which Pratt & Whitney had in World War II.

Mr. HOLIFIELD. This was for production; was it not?

Admiral RUSSELL. This is for everything.

Mr. HOLIFIELD. This is for production.

Admiral RUSSELL. We assisted them at every turn, sir.

Mr. HOLIFIELD. Wait just a minute, let's keep this record clear.

As I have understood it, the research and development facility was at Essington, Pa., and the plant that you now speak of is a production plant at Kansas City; am I right in that?

Admiral RUSSELL. With certain research facilities put in recently.

Mr. HOLIFIELD. Recently?

Admiral RUSSELL. In this time span of which we are speaking between 1947 and the present, sir.

Mr. HOLIFIELD. But not at the time you let the contract?

Admiral RUSSELL. At the time we let the contract, Westinghouse was in business at Essington.

Mr. HOLIFIELD. That's right. All right, I think we have got it here.

Mr. ROBACK. While we are on that point, Mr. Chairman, can we be advised as to whether the Navy paid the $25 million for the removal from Pennsylvania to Kansas City of those facilities?

Admiral RUSSELL. I am not current on that. If you would care to, I will ask the staff at this time.

Mr. ROBACK. Will you be able to get that information during this hearing?

Admiral RUSSELL. I am informed by my staff that Westinghouse paid the $25 million. The amount is in question, but Westinghouse paid it.

Mr. HOLIFIELD. Is Commander Woodhull in the room?

Commander WOODHULL. Yes, sir.

Mr. HOLIFIELD. Commander Woodhull, do you swear the testimony you are about to give before this committee is the truth, the whole truth, and nothing but the truth, so help you God?

Commander WOODHULL. I do, sir.

Mr. HOLIFIELD. Have you been correctly quoted, sir, and is there any clarification as to point of time that you wish to make?

Commander WOODHULL. I would say that my remarks in general apply to hindsight information going back and analyzing the situation as it existed in the 1947, 1948, and I believe, 1949 period. It is in part a matter of opinion, and again I am going to emphasize hindsight opinion.

Mr. HOLIFIELD. But it is your best judgment, and to the best of your knowledge you thought you were making a true statement?

Commander WOODHULL. Yes, sir; that's correct. I think further in that record, if I recall correctly, I also stated that in that general time period there were not a lot of facilities for anybody.

We were just getting into the big-engine business, and other companies didn't have facilities then either, but they were a little more aggressive in the subsequent period of the years when they got started in the business of putting in what they needed for adequate facilities.

Mr. HOLIFIELD. At that time as I understand it—and I am speaking about the years 1947, 1948, and 1949—there were 5 producers of jet engines, 5 major producers of jet engines; were there not?

Commander WOODHULL. Yes, sir.

Mr. HOLIFIELD. And you were speaking in a relative comparison of their aggressiveness at that time?

Commander WOODHULL. No, sir.

Mr. HOLIFIELD. Between the Westinghouse group and the other four?

Commander WOODHULL. I will state that my remarks of necessity have to cover a broader period of time because it was in the years 1947 through perhaps up to 1950, and this is again a matter of my recollection, that the other companies did put in their own facilities, some

to a much greater extent than others, notably Pratt & Whitney has much larger facilities than others, but there was a varying degree of these. It was, in my opinion that Westinghouse put in the least in the way of facilities.

Mr. HOLIFIELD. Thank you, Commander.

Mr. ROBACK. Admiral Russell, what was the intended mission of the WE–8 which you mentioned in your second paragraph?

Admiral RUSSELL. I missed one word, sir.

Mr. ROBACK. What was the intended mission of the WE–8?

Admiral RUSSELL. The WE–8 was designed primarily to go into our interceptor fighters.

Mr. ROBACK. In your opinion, would that have been an adequate engine for first-line interceptor duty?

Admiral RUSSELL. Interceptor duty, yes. And I would call your attention to the fact that the F–4D established the world speed record with that engine sometime ago.

Mr. BALWAN. Is that the experimental model, the F–4D, which established the world record?

Admiral RUSSELL. That was an experimental model, yes.

Mr. ROBACK. On page 3, the last paragraph, you refer to the fact that McDonnell elected the J–40 engine. What is the latitude of the frame manufacturer in electing engines?

Admiral RUSSELL. It depends on the terms of the competition. Usually the Government spells out several powerplants which can be procured to put into the contractor's airframe to make the engine.

In this case I am informed by my staff that the choice lay among several, 2 Allison, J–33's; 2 different Westinghouses, J–40's, J–40–6's, and J–40–8's; the J–46, which was a much smaller Westinghouse engine and under development, the J–47, which was a General Electric turbojet, and the J–48, which was a Pratt-Whitney turbojet.

Mr. ROBACK. Are you stating that it was a matter of indifference to the Navy which engine the frame manufacturer selected?

Admiral RUSSELL. It certainly was not, sir. The engine is the heart of the airframe, the heart of the airplane, and the performance depends largely on the engine. We are most interested in getting the most advanced engine we can timewise in our airplanes in the fleet.

Mr. ROBACK. Therefore, McDonnell's election, if I understand what you say, was recommended by the Navy.

Admiral RUSSELL. His choice was concurred in by the Navy.

Mr. LIPSCOMB. Mr. Chairman.

Mr. HOLIFIELD. Mr. Lipscomb.

Mr. LIPSCOMB. Does that mean each of the engines you mentioned all had the same specifications?

Admiral RUSSELL. No, sir. In the case of the J–46, for example, it would be obvious we might want two engines instead of one.

Mr. LIPSCOMB. Do you tell the frame manufacturer the specifications of the engine you expect in that particular plane?

Admiral RUSSELL. We, do; yes, sir, to the best of our knowledge.

Mr. LIPSCOMB. And then the specifications we are talking about, I mean McDonnell may have had no other choice than to take the J–40?

Admiral RUSSELL. I wouldn't say no other choice. He might have used a smaller powerplant of great efficiency in a dual installation. Apparently he chose this one as offering the best chance of the most forward and most high performing airplane that he could build.

Mr. LIPSCOMB. What do you consider a firm specification as referred to in the second paragraph on page 3?

Admiral RUSSELL. When a development gets far enough along for that, an aircraft manufacturer will say, "My engine will deliver so many pounds of thrust, it will weigh so much, and its fuel consumption will be so many pounds per pound thrust per hour." This we consider a firm specification.

Mr. LIPSCOMB. Then if the frame manufacturer decides upon that particular engine, the Navy lets the contract for that engine under those specifications?

Admiral RUSSELL. Not necessarily. The engine may already have been in process before this time, and in hindsight it might have been very wise in this case, if the J–40 could have been further along before we suggested it as a powerplant for an airplane. You see, we are reaching out to get the ultimate in performance.

Mr. LIPSCOMB. When McDonnell gave Westinghouse the contract, whichever way it operates, did you specify certain specifications agreed to by the manufacturer?

Admiral RUSSELL. We gave the McDonnell company specifications in respect to the qualities we have mentioned in addition to size, thrust, which this engine would develop, its weight, its specific fuel consumption, how much fuel it will burn for the thrust over a period of time.

Mr. LIPSCOMB. Did any of the engines delivered ever come up to the specifications?

Admiral RUSSELL. In the case of the XF3H–1, and I would like to check that with my staff, it probably did. The J–40–8 did meet its specifications.

Mr. LIPSCOMB. The Navy never accepted any engines that did not come up to specifications?

Admiral RUSSELL. The Navy did accept engines, but they were derated engines in many cases.

Mr. LIPSCOMB. Is it the policy to accept engines when they don't come up to specifications?

Admiral RUSSELL. No, sir; it is not. I would like to point out, however, that in this very dynamic business of trying to get the very best airplanes into the fleet, one often takes a gamble, and knowing it is a gamble, it is very difficult for a company to say, "I will deliver an airplane of so many pounds thrust, it will weigh so much, and its specific fuel consumption will be so much."

You have to rather coax them along to make sure they will do their utmost in development in order to get that forward-looking engine. So you see it isn't just a matter of a cut and dried product which is developed, or which they are sure they can develop. If they are absolutely sure they can develop it, maybe we don't want it because it is too backward, or maybe it is too expensive or maybe it takes too long to develop it. So there is a risk inherent in the whole situation. I think you see this, sir.

Mr. LIPSCOMB. Don't you have production contracts on engines?

Admiral RUSSELL. We do, yes, sir, and these we would expect the specifications to be fulfilled on.

Mr. LIPSCOMB. What are we talking about now, in this case?

Admiral RUSSELL. Development contract, Sir, low-dash numbers.

Mr. LIPSCOMB. Have you been accepting production contract engines that do not come up to specifications?

Admiral RUSSELL. Have we ever? It is certainly not our policy, sir.

Mr. LIPSCOMB. No, but have you been doing that?

Admiral RUSSELL. We may have derated an engine and accepted the derated specifications, yes, sir.

Mr. HOLIFIELD. May I interrupt to find out what derating an engine means?

Admiral RUSSELL. Derating, if he says it is X pounds of thrust, and he comes in and it is X minus, say 500, something like that.

Mr. ROBACK. Do you consider the WE–8 a derated engine?

Admiral RUSSELL. The WE–8, I am informed by the staff, met its specifications. It developed a thrust specification.

Mr. ROBACK. As a derated engine; is that right?

Admiral RUSSELL. No, sir, as a contract engine, the contract for the WE–8

Mr. ROBACK. Are you in a position to identify which engine is derated in this discussion

Admiral RUSSELL. You could look at the –24, which is a production engine there, which we wanted very badly, and the –22 is a derated –24.

Mr. ROBACK. Isn't the –22 in effect the –8, as far as thrust is concerned?

Admiral RUSSELL. Yes, it is the production version of the –8.

Mr. ROBACK. So that the –22 is derated and the –8 is not derated, but they are both about the same engine as far as thrust is concerned. Which engine was derated? In effect the –8 was derated?

Admiral RUSSELL. May I drop this derated term? I tried to make it clear to you by comparison of models, one is derated to another one. Let's not derate the –22.

Mr. HOLIFIELD. Admiral, you brought the term in, and, of course, the subcommittee always wants to know what we are talking about, so if you want to drop it——

Admiral RUSSELL. As a matter of policy, Mr. Chairman, I would try to do the same myself.

Mr. ROBACK. Just to get the sequence straight in the context of our discussion, you said in the second paragraph of page 3 that the advance version of the –8 was the –10?

Admiral RUSSELL. Yes, sir.

Mr. ROBACK. Was the contract for the development of the –10 let before or after the contract for the development of the –8?

Admiral RUSSELL. The –10, the development of the –10 contract, it is my memory, and if my memory serves me right, was 1 month before the contract for the –8. May I check at this point so I am not misleading the committee. October 1948 for the –10, November 1948 for the –8.

Mr. ROBACK. The contract for the WE–10 was let earlier. What was the intended mission of the W–10?

Admiral RUSSELL. The WE–10 was a higher thrust engine of the general configuration of the J–40, and the –10 with its higher thrust was the engine which we wished for the all-purpose fighter of F3H–1.

Mr. HOLIFIELD. Subsequent to that you did grant a production contract for the –8 which was a more inefficient engine?

Admiral RUSSELL. It didn't have as high a thrust, sir; that is correct.

Mr. ROBACK. What I am trying to get straight, Mr. Chairman, is using the term "derate", or "lesser power", or whatever. The WE–8

was let subsequent to the WE–10 and it was let, in effect, as an engine of lesser power. It would not perform in the way that a WE–10 would perform.

Mr. HOLIFIELD. Can you explain to the committee why you let a contract for a less efficient engine after a more efficient engine was developed?

Admiral RUSSELL. The engine is not less efficient, sir; it was lower thrust.

Mr. HOLIFIELD. All right, lower thrust. Lower thrust certainly means lower power, doesn't it?

Admiral RUSSELL. Yes, sir.

Mr. HOLIFIELD. It means lower performance, doesn't it?

Admiral RUSSELL. Yes, sir; that's right.

Mr. HOLIFIELD. All right, when I say less efficient craft, in the layman's term, I am certainly stating a fact, am I not?

Admiral RUSSELL. The engine and the airframe have to be mated together, and the lesser thrust engine might do a wonderful job in a lighter airframe.

Mr. HOLIFIELD. It might, but did it in this case?

Admiral RUSSELL. It did in the XF4D–1; it did an outstanding job.

Mr. ROBACK. You mean the WE–8 was of sufficient power before you had changed the mission of the aircraft?

Admiral RUSSELL. To break the world speed record at low altitude right off the ground.

Mr. ROBACK. Then what was the significance on page 6 of your statement that:

> At this time the Westinghouse J–40–8 engine had been flight rated, and the production version of the –8, the J–40–22 was becoming available?

This was after the mission had been changed to require a higher powered engine, What is the significance of that? I mean your mission has changed, you need a higher engine, and you are stating that the production version of the lower engine is now becoming available.

Admiral RUSSELL. It was something we could put into the airframe so we could fly it and begin to work out the aerodynamic problems, the structural problems, which would exist in flight, and the aircraft manufacturer, until he gets an airplane airborne he is not quite sure what he has.

Mr. ROBACK. It was an engine which you accepted for testing purposes, and not because it had sufficient power to fly this airplane?

Admiral RUSSELL. In the manner in which we wished the airplane to fly; that is correct, sir.

Mr. ROBACK. In the sense and to the extent that you accepted this WE–8 engine, that engine performed to specifications?

Admiral RUSSELL. The WE–8 engine performed to specifications.

Mr. ROBACK. So that when Westinghouse says they produced an engine which the Navy accepted and it was up to specifications, in that sense they are correct?

Admiral RUSSELL. In that case, yes, sir. The engine that wasn't produced was the one we wanted, the –10–24 combination.

Mr. ROBACK. I am merely trying to distinguish what we are talking about, Admiral.

Admiral RUSSELL. Thank you, sir.

Mr. HOFFMAN. Mr. Chairman, before they get away from that derated business, may I ask a couple of questions?

Mr. HOLIFIELD. Go right ahead.

Mr. HOFFMAN. You were asked several times whether you accepted engines which were not up to specifications. The Navy put out the specifications for either a plane or an engine which it thought would be best for the Navy, didn't it?

Admiral RUSSELL. Yes, sir.

Mr. HOFFMAN. Then if someone came along with a plane or an engine which didn't meet those specifications, you had some other duty, didn't you, and that was to keep the combat forces supplied with weapons?

Admiral RUSSELL. Yes, sir.

Mr. HOFFMAN. Weren't you confronted there with a choice?

Admiral RUSSELL. We might accept an engine of lesser thrust.

Mr. HOFFMAN. So as to have something?

Admiral RUSSELL. To have some contractual arrangements to make good the difference, you see, in order to use it. If it is usable, we might accept it and look to our readjustment, redetermination of price, and so on, to make the situation equitable.

Mr. HOFFMAN. Then if you violated some technicality of the law, or procurement, or something, which required you not to accept the other thing which was up to specifications, and you did go ahead and accept something that wasn't up to specifications, at least you got the combat fellows a weapon?

Admiral RUSSELL. You did, yes, sir.

Mr. HOFFMAN. And having that choice, would you ever hesitate as to what you should do, whether you should waste or spend a few dollars, or a few millions, or whether you should supply the forces which we sent across with what they needed?

Admiral RUSSELL. That is correct, sir.

Mr. HOFFMAN. The best they can get?

Admiral RUSSELL. That is correct; yes, sir.

Mr. HOFFMAN. Wasn't that your purpose all the way through?

Admiral RUSSELL. That is our purpose.

Mr. HOLIFIELD. We had better clarify this line of questioning. This was not a combat engine, was it, and it never was produced in time for the troops to use in combat, was it?

Admiral RUSSELL. It would have been used for people to train for combat, sir, had our scheme gone through of using the –22 and the F–3H–1.

Mr. HOLIFIELD. But the acceptance of these engines was not based on immediate war need because by the time they got into production, why the Korean difficulty was pretty well settled, wasn't it?

Admiral RUSSELL. Well, that is correct, but you can see the utility in using these to train people for the same airframe, higher power.

Mr. HOLIFIELD. Is this the same engine that has been crashing, killing pilots, and which has now been rejected?

Admiral RUSSELL. There has been a number of crashes with aircraft in which this engine has been installed.

Mr. HOLIFIELD. Do you intend to continue to use this engine in flight?

Admiral RUSSELL. We do not, sir.

Mr. HOLIFIELD. Mr. Lipscomb?

Mr. LIPSCOMB. I was only going to ask if you accept an engine that is below specifications, what do you use it for if you have to mate the frame to the engine?

Admiral RUSSELL. An example is the F3H–1, in which we accepted the available engine, the –22, which had lower thrust, in order to get the airplane to fly, to conduct the tests on it, and also to train people to use the F3H–2, which is the higher powered version.

Mr. HOFFMAN. May I ask 1 more question? What you do is to do the best you can to supply the forces with the things they say they need.

Admiral RUSSELL. That is correct, sir.

Mr. HOFFMAN. And for which Congress appropriates the money, don't we?

Admiral RUSSELL. That is correct.

Mr. HOFFMAN. And was there ever a time when, on Monday morning quarterbacking, you could not see where you could have done something better?

Admiral RUSSELL. Very seldom, sir, unfortunately.

Mrs. GRIFFITHS. Mr. Chairman, may I ask a question?

Mr. HOLIFIELD. Mrs. Griffiths?

Mrs. GRIFFITHS. Didn't you accept at least 61 of these after you knew you weren't going to use them; didn't you tell us that this morning?

Admiral RUSSELL. We accepted engines up to the point—First of all, the idea of using this –22 engine and the F3H–1 came a "cropper" when we had crashes and lost pilots, lost confidence in the engine and decided no longer to fly it.

When the termination was made, we had enough engines on order to equip just these aircraft plus those engines which we had best accept anyway because they were built. And all these factors were cranked into the termination proceedings, you see.

Mrs. GRIFFITHS. But you accepted them and put them in place, didn't you, when you knew they wouldn't work; didn't you?

Admiral RUSSELL. No, ma'am, we did not.

Mrs. GRIFFITHS. What about those planes you were going to ship out on the barges? You knew those weren't going to work, didn't you?

Admiral RUSSELL. Yes, ma'am.

Mrs. GRIFFITHS. And you accepted those?

Admiral RUSSELL. We didn't know at the time we accepted them they wouldn't work. Actually, we are still accepting those engines, ma'am.

Mrs. GRIFFITHS. And you know now they are not going to work; right?

Admiral RUSSELL. They are going to the training schools so that the mechanics can learn how a turbo engine looks inside.

Mrs. GRIFFITHS. And they are never going to be taken off the ground; isn't that right?

Admiral RUSSELL. Probably not. If war were around the corner we might use them.

Mrs. GRIFFITHS. You mean that you are going to get boys setting out from an airfield someplace in one of those planes, with one of those expensive engines, and you never expect them to fly the plane; is that right?

Admiral RUSSELL. When the contract determination was made, these engines were procured with the idea they would be usable and would be used in the F3H–1. We now have them on our hands and we have uses for them.

As at matter of fact, of the first 25 aircraft, 21 of which you mentioned going down the river on a barge, we have in the order of a hundred requests for these aircraft and these engines for schools, for experiments, I mean, our own service schools you understand, the training of mechanics, the training of mechanics in engine and structure.

Mrs. GRIFFITHS. If you are training mechanics, then you don't need a frame for the engines.

Admiral RUSSELL. You certainly don't, ma'am.

Mrs. GRIFFITHS. And if you are training pilots, you are putting pilots in the planes——

Admiral RUSSELL. You don't need an airframe or engine of this particular vintage necessarily. You could use it for this purpose.

I would prefer to use one which had had several service tours in the Navy for the same purpose, but these are available, they are advanced types of engines, and the instruction which these people will get will benefit the Navy in general.

Mrs. GRIFFITHS. But I still think that money was at least wasted to the extent that you bothered to put the engine in the frame when you knew it wasn't going to work.

Admiral RUSSELL. We didn't know, ma'am.

Mrs. GRIFFITHS. If you were going to have mechanics working on it, you might as well have left the engine out of the plane. If you are going to have kids sitting in the plane on the ground, you might as well have had a Ford motor. They could have had just as much fun starting that up.

There wouldn't have been any problem, it seems to me, and if you are ever planning, as you stated this morning, on exchanging this engine for another engine, it seems to me that you should supply figures on what it costs for this engine, what it costs for the engine that would work, and what it would have cost to put this engine in the plane, and then to have removed this engine and put in another engine.

It seems to me it would have been a terrific cost to have changed those engines, and a tremendous waste of money, and I have the feeling that this is going on all the time.

Admiral RUSSELL. Mrs. Griffiths, I hope I can stimulate a little more confidence in the Bureau of Aeronautics someday. I have a very loyal group of people who are dedicated to their country. We exercise the very best judgment we can, ma'am.

If we made an honest mistake, I admitted it. I have never denied anything to any of the investigators here, which they may testify to. I got them in my own office and I said, "We have no secrets to hide from you. We have problems and we will be happy to share them with you."

This is not an easy job, ma'am.

Mrs. GRIFFITHS. I know it is not an easy job. I have no doubt about it. But it just seems to me that when you knew those motors wouldn't work——

Admiral RUSSELL. This is hindsight, ma'am.

Mrs. GRIFFITHS. Let me ask you this: Those were started 18 months after Westinghouse started building an engine of this thrust. How soon did you know that those late starters had produced a more successful engine?

Admiral RUSSELL. We knew it before we could get those successful motors, because there were other requirements which had to be filled with them.

Mrs. GRIFFITHS. In what year did you know it?

Admiral RUSSELL. Our first decision was December 1952.

Mrs. GRIFFITHS. Did you know it in December of 1952?

Admiral RUSSELL. December of 1952 is when we ordered the J–71, when the decision was made to substitute the J–71.

Mrs. GRIFFITHS. When did you first know that the engine was more successful than the Westinghouse engine?

Admiral RUSSELL. That is a matter of gradual knowledge. There is no chopoff date. You watch the development of an engine, you watch it with a great deal of interest because it may be a success or a failure in a war. You watch this engine with great interest and somewhere along the line you say this one is better than that one.

Now if we can get them—and remember, there is a matter of priorities in the Government, and the Air Force is building airplanes which they need badly, too, so we couldn't get the J–71 although we wanted it right away, because there was a more urgent priority to put it in a different airplane.

And the same way with the J–57. There were much more greater demands, and we had already committed ourselves to this engine, which should have been developed. If our analysis of the situation had been correct, we would have had an outstanding airplane.

Mrs. GRIFFITHS. How many of these planes crashed, with engines Westinghouse was making, how many did you have after December 1952?

Admiral RUSSELL. All but one. The first one was the experimental plane which crashed with Mr. Houghton, a test pilot with McDonnell, and that engine had a turbine failure, and he came down minus his power and made a landing just short of the runway. He had no injuries, but the airframe sustained B-class injury. A is total destruction; B is the next thing to it, C, D, and——

Mr. BALWAN. Is it possible to have the Navy, Admiral, give us a rundown on the amounts that were ordered by contract for these various engines for development purposes, and again for production?

Admiral RUSSELL. Yes, sir, certainly. Do you wish this in open session?

Mr. BALWAN. Can that be done in open session?

Mr. HOLIFIELD. As I understand it, the question is to differentiate between the contracts for engines and frames, for research and development purposes and the straight-line production.

Admiral RUSSELL. This can be done by model number. The high numbers there, the –22's, –24's, and –26's, which didn't materialize in production; the rest of them we should consider as experimental.

Mr. HOLIFIELD. Does that answer your question, Mr. Balwan?

Mr. BALWAN. The –6 was designed for the F3H–1; am I correct in that?

Admiral RUSSELL. I would like the staff to answer that, if I may. Admiral Dixon, please, my Assistant Chief for Plans and Programs—

Mr. BALWAN. Which engine was designed for the F3H–1?

Admiral DIXON. The –8. The –6 was a non-after-burning version of the –8, which was to go into the A3D airplane on your left.

Mr. BALWAN. So that the –8 was designed to go into the F3H?

Admiral DIXON. XF3H–1.

Admiral RUSSELL. There were two experimental airplanes. Light ones——

Mr. BALWAN. Somewhere you decided, somewhere along the line you decided instead of having the interceptor, you were going to buy the F3H–N?

Admiral RUSSELL. F3H–1.

Mr. BALWAN. N?

Admiral DIXON. May I answer that, Admiral. The concept of the airplane changed due to the prospective availability of the –10 engine which we required for the heavier airplane, which was the production version of the F3H–N.

Mr. BALWAN. I don't understand that, Admiral.

Admiral DIXON. I am sorry, sir, the birth of the airplane was the XF3H.

Mr. BALWAN. That is a plane interceptor?

Admiral DIXON. Right. The –8 engine was adequate to give that plane the necessary performance. Westinghouse said that he could deliver us the –10 engines higher thrust. We therefore revised our concept of the airplane and gave it more capabilities, which resulted in increasing its weight approximately 10,000 pounds.

Mr. BALWAN. This is a new idea that I didn't have. When Westinghouse told you that they could produce a –10 which is an engine of higher capability, you then decided that you could design the F3H into an N version, which is an all-purpose type of plane; is that right?

Admiral DIXON. That is correct.

Mr. BALWAN. And you realized before too long or maybe after a long time, that you weren't going to get a –10. There came a point somewhere along the sequence when you knew that you weren't going to get a –10?

Admiral DIXON. Slowly we realized that, yes, sir, and finally it culminated when we made the decision to install the J–71 engine, which was in December of 1952.

Mr. BALWAN. But before you did that, you also ordered some –22's, which could be a derated or a lesser power engine?

Admiral DIXON. Yes, sir. The story runs briefly like this. For the XF3H program, of which we had two flight articles, we needed –8 engines. The contractor in proceeding to the –10 engine was to go through a development of the –8 also, which was the –22 in production. I am not too certain of my figures, but I think we planned to utilize a limited number of –22's originally to get the contractor started into his test programs prior to availability of –10 engines.

Mr. BALWAN. Yes, but when the –22's went into the production and you ordered those, was it ever conceived that the –22's would go into the plane F3H–1, or was it conceived that the frame coming off the line wanted an engine, so you said "Give us some –22's to put in the N's"? Am I correct in that?

Admiral DIXON. When we decided on the J–71 engine, there were a certain number of airplanes practically completed. We then decided that we would continue the –22.

Mr. BALWAN. Which was somewhat like the –8?

Admiral DIXON. Production version of the –8.

Mr. BALWAN. And the –8 was intended to power a pretty light F3H?

Admiral DIXON. Right, and we were forced by circumstances to continue the –22 in the production line because the –10 never became available.

Mr. BALWAN. Now how many –22's did you want for this limited purpose? Am I correct in understanding what you are saying, that you decided to go into the –22's for a limited purpose merely because you had some frames that you wanted to put engines in?

Admiral DIXON. No, sir. We expected to get, as the Chief of the Bureau has pointed out, benefits from the –22 in all 61 F3H–1's, namely, permit the contractor to complete his test program.

I might point out that the –8 engine took the airplane aboard the carrier where it was qualified in its carrier suitability trials. We also expected to utilize these airplanes, F3H–1 with the –22 engines in the training program.

Mr. BALWAN. So that at the most you expected not more than 60 planes to be fitted with the –22?

Admiral DIXON. That's right, sir, and all the time we were hoping for the –10 to materialize so that we could back fit if it became available.

Mr. BALWAN. So the –22 was a kind of stopgap with the idea that you were hoping the –10 would materialize. How many 22's did we order for such a stopgap measure?

Admiral DIXON. Would you repeat that, sir?

Mr. BALWAN. How many –22's did we ever have on contract with Westinghouse for production?

Admiral DIXON. Four hundred seventy-seven at one point in its history. These were cancelled back to 365, or rather 365 were terminated. 107 materialized.

Mr. BALWAN. Mr. Chairman, may I point this out. They had a limited concept for the –22, and yet they had over 400 of these that they had ordered, so I am wondering whether there isn't something that I have missed in the presentation of this picture here.

Mr. ROBACK. Let me continue this a moment. On page 6 Admiral Russell says that the J–40–22, while not of a sufficient thrust—

fully to satisfy our revised concept, the J–40–22 would make the F3H–1 operable with reduced performance.

Does that mean anything other than for flight experience and training purposes?

Admiral RUSSELL. It depends on the job you have to do. If we were going to war tomorrow, undoubtedly—and this airplane came along—we would have used it as it was.

Mr. ROBACK. You would have used it for first-line performance?

Admiral RUSSELL. It would certainly be useful in a situation like Korea. It has machine guns, you know, rockets and so forth.

Mr. ROBACK. Captain Dietrich has given an unclassified presentation to the staff which contains this statement among others——

Mr. HOLIFIELD. Just a minute, did I hear someone say this is classified?

Admiral RUSSELL. Captain Dietrich is in the room.

Captain DIETRICH. Yes, sir, my statement is classified "confidential."

Mr. ECKHART. I would like to indicate we received two statements from Captain Dietrich, one was his formal statement in the Under Secretary of the Navy's Office, which was confidential, and we have a revised version of that which is captioned as an unclassified version of that same statement.

Mr. HOLIFIELD. Captain, would you step forward and identify this document and tell this subcommittee whether this document is classified or unclassified?

Captain DIETRICH. This is the unclassified version.

Mr. HOLIFIELD. Captain Dietrich informs the subcommittee that this is the unclassified version of his letter. Counsel may proceed to read it.

Mr. ROBACK (reading):

> Based upon the belief that the J–40 would never be a completely acceptable service engine, it was decided that the F3H–1 would be limited to one service tour with no overhaul. Spare parts support was limited with the intent to cannibalize in order to support the program.

What is the date of that decision and what is the meaning of limiting the J–40 to one service tour with no overhaul?

Admiral RUSSELL. I will have to check the date. The meaning of limiting it to one service tour, aircraft go out into the fleet and they serve a certain number of months, at the end of which they come back and go through major overhaul of structure, receive new engines, and so forth. This is one service tour. It is a span between the new aircraft arriving in the fleet and the date when it goes into its first major overhaul.

Mr. ROBACK. In other words, there came a time, as I understand it, Mr. Chairman, when this lesser-powered engine, the J–40–22, was regarded by the Navy as of a limited-performance ability, and they were willing at one point to go to the extent of giving it one service tour. Now that is still a second-line performance, isn't it? That is not first line?

Admiral RUSSELL. Yes, but you should remember also that there was always the hope of getting this higher thrust engine into the same space the same airframe that the –22 would serve in as an interim engine.

Mr. ROBACK. At what point did the Navy lose hope that the WE–10 never would materialize?

Admiral RUSSELL. Let's see, the date of the last cancellation, if I can find that here, September of 1953 I am given. This is indicative of the time, September 1953 termination of the development contract for the J–40. I believe that was the J–40–24.

Mr. HOLIFIELD. Could I ask a question at this time? Mr. Balwan brought out the fact there was 477 of these model –22 engines on order, on production order. That was later revised to 365.

Mr. BALWAN. Mr. Chairman, may I comment just briefly on that? The Navy has provided the staff with a lot of documents, but again they are classified. Our figures do not agree with what was given, but we cannot give it because it is classified. That is in the general range.

Mr. HOLIFIELD. The question I am coming to is not necessarily a matter of numbers. It is a question of when that contract was revised to 365, and then later, as I understand it, revised to 107—am I right on that?

Admiral RUSSELL. No, sir, the original contract according to my record here, we at one time had contracted for 477 of the –22 or 22–A engines, and upon termination we would come up with 107 as being the best place to cut off in the interests of the Government saving as much as they could from the program.

Mr. HOLIFIELD. How many did you pay for? What did you pay for on termination of those 107 engines?

Admiral RUSSELL. We still have 11 of these to receive, sir and the bill is yet to come.

Mr. HOLIFIELD. When you terminated, have you concluded your negotiations on the termination costs of this contract?

Admiral RUSSELL. No, sir.

Mr. HOLIFIELD. Was this contract terminated for the benefit of the Government or because of default on the part of Westinghouse in producing an efficient engine?

Admiral RUSSELL. I believe this was terminated at the convenience of the Government because he was fulfilling the specification of the –22, you see. Can I have an opinion on this particular from our contract termination? It was terminated for the convenience of the Government.

Mr. HOLIFIELD. When it was terminated for the convenience of the Government, that meant that the Government had to pay for the 477 engines it had contracted for.

Admiral RUSSELL. No, sir.

Mr. HOLIFIELD. The 365 or the 107 that it obtained?

Admiral RUSSELL. No, sir. We pay for the 107, plus any reasonable costs which the contractor has incurred in anticipation of making further engines.

Mr. HOLIFIELD. We will get into the subject of termination later. I will leave that at this point.

Mr. ROBACK. What was the next step? In the decision of the Navy, what was the next step determining that the WE–22 was deficient in performance? We had stopped at the point of limiting the operation to one service tour.

Admiral RUSSELL. Well, the next action was to substitute the J–71 engine for it and get into the production line as soon as we could without too much loss.

Now, I would like to point out that as the red flag of danger was hoisted gradually in this situation we started cutting back, and we had cut back to the point where we could stop the –1 airplane, the F3H–1 at the 60th airplane, and the 61st could be the F3H–2 with the Allison J–71 engine in it.

Mr. ROBACK. You say in January 1951, that is when you made the decision to get the higher thrust engine. When was the higher thrust engine, the WE–10 engine, contract for production made in relation to the decision to require it?

Admiral RUSSELL. Can I have the staff's opinion here? Has anyone got that?

I am informed there was only one on order.

Mr. ROBACK. I didn't understand the response, Admiral.

Admiral RUSSELL. May I check it just a little further, please?

Mr. HOLIFIELD. At this time, after you get through responding, we are going to let Mr. Morgan develop his point, because he has some figures, I think .

Admiral RUSSELL. I have a record that there has only been one –10 on contract, quite obviously a development contract.

Mr. HOLIFIELD. Mr. Morgan.

Mr. MORGAN. By that you mean there is only one contract let for the WE–10, one production contract.

Admiral RUSSELL. That is my record here.

Mr. MORGAN. There were two contracts for the WE–10, if my records are correct here. There was the Ford contract and the Westinghouse contract.

Admiral RUSSELL. I am sorry, this is production contract.

Mr. MORGAN. These are both production contracts. I will give you the numbers, 51–966 was the Ford, and the letter of intent 52–048 was with Westinghouse.

Mr. HOLIFIELD. Is this not the first time the Ford contract has been brought into the picture? There was nothing in your statement about the Ford contract, was there, Admiral Russell?

Admiral RUSSELL. No, sir; there was not.

Mr. HOLIFIELD. Wasn't that a pertinent bit of information on your chronology?

Admiral RUSSELL. On the engine, sir, not on the airplane.

Mr. HOLIFIELD. Is that all, Mr. Morgan? Any further questions?

Mr. MORGAN. On that total of WE–22's on contract, if it is permissible, I would like to state what my computation is on that.

Mr. HOLIFIELD. If it is permissible? Are you speaking from the standpoint of getting the chairman's permission or from the standpoint of security?

Mr. MORGAN. Security, mainly, since the Navy has given a figure of 477, I believe. I was wondering if we could quote the figure that we have.

Admiral RUSSELL. I think the number of the –22, the numbers ordered, are no longer a matter of security.

Mr. HOLIFIELD. All right.

Mr. MORGAN. I have a total of 564. This is referring to contracts 10385, 51966, and 52–048.

The time of this would be in early 1953 after the decision had been made by the Navy to install the J–71 engine in airframe No. 61 coming off the production line.

Mr. HOLIFIELD. Is there anyone from the Navy who cares to comment on the figures read by the member of the staff?

Admiral RUSSELL. I would like to say that we will certainly look this up. The staff, as you know, has had open door at my place, and we have absolutely no secrets from them. They have had access to the records. If we have it incorrectly, it is just a matter that my staff is overburdened with work.

Mr. HOLIFIELD. We appreciate that, and I am not trying to pin you to an exact figure, Admiral. We are just trying to develop the facts in this case, and we recognize that there may be inadvertent mistakes on figures. Proceed.

Mr. ROBACK. In this case, the contract for the WE–10, at least in part, was let after the contract for the frame into which it was going to go; is that right?

Admiral RUSSELL. Probably. Commander Woodhull could testify to that, if you please.

Mr. HOLIFIELD. Commander Woodhull.

Commander WOODHULL. The development contract for the –10 was started in October of 1948.

Mr. ROBACK. By the way, while we are on that point, was that the contract, the WE–10, that we are talking about now?

Commander WOODHULL. Yes, sir.

Mr. ROBACK. Was there ever a contract for a WE–10 with a lower thrust rating than the one we are talking about?

Commander WOODHULL. It started out initially as a –10, which is a dry engine of a somewhat lower thrust, but very shortly it was revised into an afterburning engine of higher thrust.

This engine was somewhat intermediate between what the 8 and the 10 later turned out to be. This was very shortly revised upward, and when the –10 failed to materialize, Westinghouse proposed a step backward, downward, which then became the –24.

Mr. ROBACK. Do you have the date when the WE–10 was a lower thrust engine than the——

Commander WOODHULL. 10–48 was the original start of what we defined as the –10 development program, October 1948.

Mr. ROBACK. When did you have a contract for the development of a higher thrust WE–10?

Commander WOODHULL. The –12, which is merely a nonafterburning version of the –10, was 5–49.

Mr. ROBACK. When was the WE–10 as such?

Commander WOODHULL. I think they are all part of the same contract, 1048. It is the best of my recollection that the –10 and –12 are on the same contract, 1048.

Mr. ROBACK. Now will you proceed to answer the earlier question with regard to the timing of the airframe and the WE–10 engine contracts?

Commander WOODHULL. The information I have, the contract for the F3H aircraft was in March of 1951. At that time the engine had been under development approximately—several months.

Mr. ROBACK. You say the engine had been under development?

Commander WOODHULL. Since 1948, the basic engine. This engine actually preceded the production of the F3H aircraft. The engine was under way before the aircraft was ordered.

Mr. BALWAN. Not for the N, if I may inject. At this time they had not thought of the N version of the F3H.

Commander WOODHULL. The XF3H had already been built. I don't know whether it was flying or not; it had been built around the –8.

Mr. BALWAN. Was the N in the picture at this time? Was the all-purpose fighter in the picture at this time?

Commander WOODHULL. Not at the time of the start of the –10, not production, I beg your pardon, development.

Mr. ROBACK. In effect did you let a contract for airframes before you let a contract, or at least in part, for the engines which were supposed to go into them? I am referring to the WE–10.

Admiral RUSSELL. I would like to check that. Admiral Dixon, do you have a correct answer to that?

Admiral DIXON. According to my chart here, the development contract for advance J–40 engine was let in 1949. The original contract with McDonnell for F3H was let in January 1951.

Mr. ROBACK. What was the date when you let the production for the WE–10?

Admiral DIXON. No specific date, sir, but the engine would obviously have to be concurrent with the airframe.

Mr. ROBACK. Concurrent, you say. Isn't it a fact that at least some of your production orders for J–40 engines came after the contract for the airframe?

Admiral RUSSELL. We can look the dates up. The principal thing is that we have the F3H coming along and we want the –10 thrust to make it work properly. The J–40 series is being worked up to the performance of the –10. I am not sure of the dates of the contract. We are not prepared on the dates on the job.

Mr. ROBACK. You say at the bottom of page 4:

* * * this improved design—

of the J–40–10—

was progressing normally at the time of decision—

that is, normally at the time of the decision to change the mission of the airplane.

Admiral RUSSELL. That is correct.

Mr. ROBACK. What is this reference to the beginning of 1951, that that was progressing normally?

Admiral RUSSELL. I would suppose that is correct, sir.

Mr. ROBACK. When was the first time that the Navy communicated with Westinghouse with regard to unsatisfactory progress in engine development? I have reference to WE–10.

Admiral RUSSELL. What specific correspondence was first, I don't know. There were many occasions when verbal and written advice to the company were given that we should like to see better progress with the engines.

Mr. ROBACK. In other words you are saying such questionable progress would be considered normal. We have a record, by the way, of letters sent in April 1949 and July 1950. I was just trying to find out whether in those days when you were expressing your concern to Westinghouse over developmental work, whether you considered that the WE–10 development was progressing normally.

Admiral RUSSELL. I would presume that is the case, sir. Please remember that the dash number, the sequence of development of the J–40 family of engines, the J–40 is basically the same machine.

We may speak of the WE–10 performance, the actual date of the contract I can't testify to. But the identity for the WE–10 was from away back and it was only because we figured such thrust could be obtained from the J–40 family that we went ahead with the F3H as an all-purpose fighter rather than the interceptor, the lighter version.

Mr. HOLIFIELD. Your statement to the committee terms as normal progress a period of time in which you were writing letters complaining about the progress to the Westinghouse people. That seems to be the point raised by the counsel.

Admiral RUSSELL. What counsel says may be true, sir; normal progress is writing letters to the contractor to put spurs in him to get his bare airplanes to the fleet.

Mr. HOLIFIELD. We are interested in knowing whether that normal progress turned into serious difficulty.

Mr. ROBACK. You say you entertained the possibility that the WE–10 might materialize up to the minute that you terminated the contract.

Admiral RUSSELL. Yes.

Mr. ROBACK. Any time until then you thought it might be. What was the basis of the decision in 1952—it was a full year previously at least—to install the J–71 engine in place of the WE–10?

Admiral RUSSELL. There comes a time—and when we are in executive session, I can show you the promised dates, the actual development time and what happened—there comes a time when you give up hope of development.

Mr. ROBACK. It doesn't spring eternal in other words?

Admiral RUSSELL. Sometimes it has to be sawed off. We always hope for the advance performance but in several instances we don't get it.

Mr. ROBACK. Secretary Wilson was quoted in the paper in response to the question why these contracts persisted, that hope springs eternal.

Apparently at that time it died.

Admiral RUSSELL. There is another factor germane to the issue here, when in point of time one might expect this engine. If we had thrown in more facilities and more dollars we might have the engine a year from now. So time is an element in measuring these things.

Mr. ROBACK. When you let these production contracts which were concurrent with the airframe contracts, did the Navy believe that they would have a combat plane for use in the Korean conflict?

Admiral RUSSELL. We certainly did, when we started this or we never would have started it.

Mr. ROBACK. Well in considering this engine, you didn't have a tested engine of WE–10 as late as when?

Admiral RUSSELL. We never had it.

Mr. ROBACK. You never had it in 1952 when you started to change over your engine or at least made plans for it.

How long did you suppose it would take to get an airplane in the field?

Admiral RUSSELL. After an engine had been tested. We used a device to get the airplane into the field, into service here, using the –22 of which we have been speaking.

Mr. ROBACK. You were testing the airframe but you did not have an engine that would be able to perform first-line duty as far as you were concerned?

Admiral RUSSELL. That is correct.

Mr. ROBACK. Testing it against an unspecified future as far as the airplane was concerned?

Admiral RUSSELL. Right.

Mr. ROBACK. What were the circumstances by which McDonnell communicated to the Navy that they prefer the J–71 to the J–40? How were those representations made?

Admiral RUSSELL. I believe it was in a letter.

Admiral DIXON. Right.

Admiral RUSSELL. April of 1952.

Mr. ROBACK. What was the sequence of developments in the Navy when they got that communication between the time they received it

in April 1952 and the time in November 1952 reportedly when they decided to accept the recommendations?

Admiral RUSSELL. We had even before then—and one always does in any new airframe—looked for an alternate engine installation. There were two which were considered. One was the J–57, the Pratt & Whitney, and the other was the Allison J–71. The airframe manufacturer quite obviously should suggest a change if he does not have performance in his powerplant.

It is our responsibility, however, to make the thing practical. We have to buy the engine. And here is where we ran into difficulty. The ducting of the J–71 entrance had to be altered to go into the McDonnell F3H. There were commitments for the Air Force for the same engine, the J–71, so it was a matter of priority. When could we get the engine? All these things had to be pretty thoroughly thought through before we could go to the contractor and say, yes, start spending Uncle Sam's dollars to change the design of the aircraft to take the J–71.

Mr. ROBACK. You refer on page 5 to immediate procurement of the J–71 being doubtful because of Air Force commitments. Does that mean that you could have procured the J–71 immediately if Air Force was not committed? Was that an engine on the production line?

Admiral RUSSELL. No, it was not. Here again we are in the same box which we got into with the J–40. The J–71 is still a paper engine. It is not proven yet either. It is now proven but it was not proven at that time.

Mr. ROBACK. It was not the Air Force commitment that made it unprocurable at the time, it was the fact that it was not fully developed as yet.

Admiral RUSSELL. One of the reasons. But we had to wait our turn, which was the Air Force's priority. These must match.

Mr. ROBACK. You had lower priority because you did not have cognizance over that plant, is that right?

Admiral RUSSELL. Because we made a gamble on the J–40, sir.

Mr. BALWAN. Did you make any gambles on any other Westinghouse engines which have not come through?

Admiral RUSSELL. There is the J–46 engine which is currently in our Cutlass in the fleet. It is the F7U3 in Navy parlance. That is very difficult alphabet soup. The J–46 engine we had a great deal of trouble in getting it into service. It is now performing reasonably well and I am very happy to report that just in the immediate past they have been able to boost the power from that engine.

It is not an engine we would be happy with. As a matter of fact it is our business to be unhappy with engines. We try to get better and better ones.

Mr. BALWAN. Is the J–46 engine planned to be used by the Cutlass then?

Admiral RUSSELL. The Cutlass as it came out was engined with a J–35, I believe.

Mr. BALWAN. By Westinghouse?

Admiral RUSSELL. J–35——

Admiral DIXON. The original had the J–34.

Admiral RUSSELL. J–34 Westinghouse.

Admiral DIXON. That is the F–71.

Mr. BALWAN. Then you were planning to use the J–46.

Admiral RUSSELL. As a successor to the J–34 which it was originally powered with, because of higher performance.

Mr. BALWAN. Have you reached the point in the development of the Cutlass where you decided that you could not use the J–46? It was coming too slowly?

Admiral RUSSELL. No.

Mr. BALWAN. Have you had to cut back the Cutlass program because of delays in development by Westinghouse?

Admiral RUSSELL. We have.

Mr. ROBACK. Do we understand that substantial cutbacks were made in the airframe for both the J–46 and the J–40 as a consequence of failure to perform?

Admiral RUSSELL. I might point out this almost invariably is the case in our aircraft development. If we reach out and try to get the performance from the latest engine the airframe is delayed due to the fact that the engine is late in qualifying.

Mr. ROBACK. What kind of information can you give to the subcommittee with respect to the timing of the installation of the J–71?

It is said here that there are 15 fuselages assembled and others in various stages of subassembly.

Admiral RUSSELL. Well, the decision to substitute the J–71 engine made in December of 1952 bore fruit when the first flight was made with the J–71.

Admiral DIXON. In January 1955?

Admiral RUSSELL. January this year, 1955.

Mr. ROBACK. I didn't understand the comments.

Admiral RUSSELL. My answer to the question, sir, was that our decision in January of 1952 to substitute the J–71 engine in the F3H bore fruit in the first flight of that aircraft with the J–71 installed in December of 1954.

Mr. ROBACK. You say here by this time the production of this F3H–1 had flown. We understand that you were referring to December 1953; is that correct?

Admiral RUSSELL. Give me the page number.

Mr. HOLIFIELD. Top of page 6.

Mr. ROBACK. What is the time you are referring to?

Mr. HOLIFIELD. By this time.

Mr. ROBACK. What do you refer to there?

Admiral RUSSELL. First production of F3H–1 had flown with the J–71 engine.

Mr. ROBACK. December of 1953.

In any event McDonnell had recommended in April 1952 that the substitution be made. The Navy accepted the idea and some time later authorized the substitution. It was not until December of 1953 that you considered the question at what point it was economical to make the substitution.

Why couldn't you have made the decision a year ago, a year before 1953 to make the substitution, or to have planned for it?

Admiral RUSSELL. The first flight by the F3H, the experimental one was in August 1951. There we recognized the virtue or the lack of virtue in the airframe. Then the F3H–1 became a general-purpose fighter. It was heavied up—more fuel and so forth. And McDonnell, in accordance with my record recommended a shift to the J–71 in April of 1952.

Mr. ROBACK. Right.

Admiral RUSSELL. We probably shared the same opinion. But the effectivity of when we might get the J–71 tempered this and it appeared practical in December of 1952 when we made the decision to actually adopt it.

Mr. HOLIFIELD. I think you ought to correct that to 1953; don't you?

Admiral RUSSELL. No, sir.

Mr. HOLIFIELD. 1952, excuse me.

Admiral RUSSELL. Our decision to put the J–71 in was December of 1952.

Mr. BALWAN. Is that decision backed up by a production order, contract?

Admiral RUSSELL. I believe it is.

Mr. BALWAN. You get concurrence in December. Does that mean that later on you will have to back up that decision with a production order?

Admiral RUSSELL. Absolutely. I wonder if the staff investigators have the actual contractual paper?

Mr. MORGAN. I think the production contract on the J–71 was let in April 1953—now wait a minute; 1954.

Admiral RUSSELL. I am informed by Commander Woodhull that we actually sent a request to the Air Force.

Commander WOODHULL. In December 1952.

Admiral RUSSELL. December 1952 for the J–71's for this purpose.

Mr. BALWAN. At this point the committee does not realize that the 71 was under contract with the Air Force.

Admiral RUSSELL. That is correct.

Mr. BALWAN. You were entering into a contract with Allison for the procurement of 71's?

Admiral RUSSELL. We get them through the Air Force. We ask the Air Force, "Please procure this engine for our airplane."

Mr. BALWAN. In December 1952 you were asking the Air Force to divert some of their production because you wanted planes?

Admiral RUSSELL. That is correct.

Mr. BALWAN. Well, when did the Air Force augment their contract or amend it in any way to get the 71 rolling toward the Navy? Because, as I understand it, the 71 you wanted was not the same 71 going to the Air Force.

Admiral RUSSELL. There were little differences, like accessories or one thing or the other; basically it is the same engine.

Mr. BALWAN. Does it require any differences in the design of the intake?

Admiral RUSSELL. Very definitely in this case.

Mr. BALWAN. Was that a major design change in the 71?

Admiral RUSSELL. I would consider it so.

Mr. BALWAN. So at some point the Air Force would have to tell Allison, "We want you to deliver so many hundred or so many of these engines to the Navy"?

Admiral RUSSELL. Commander Woodhull?

Commander WOODHULL. At the time the negotiations with the Air Force were had with our interdepartmental request, Allison was aware of what we were doing and they were proceeding on an independent basis to get the preliminary work done.

Mr. BALWAN. Did they have a development contract to modify that?

Commander WOODHULL. Not at that time. I don't have the date of the exact development contract.

It would take a few months to get through the normal paperwork mill but I know from observation that Allison was proceeding with the work on their own account.

Admiral RUSSELL. This is not infrequent. They do the work on the cuff for us if they recognize the urgency.

Commander WOODHULL. We had committed ourselves to the Air Force to purchase these engines but they had some contractual paperwork to go through. It was a commitment on our part but not official to the Air Force until Allison finished their paperwork.

Mr. BALWAN. That is understandable. The paperwork is nearly all done as between you and the Air Force in a month primarily?

Commander WOODHULL. We tell the Air Force what we want allocated; allocate funds to them to cover the actual cost. They negotiate the details of the contractual arrangements with the manufacturers they control, which is Allison in this case.

Mr. BALWAN. In the contract under discussion, we have a decision in the middle of 1952 where McDonnell is requesting to change to a 71. In December of 1952 you people concur. When is the next step taken with the Air Force or with the contractor to begin to order engines for the Navy?

Commander WOODHULL. In effect the actual step, if you want to term any one phase being the most important thing, was the transmittal of our request in December 1952 to the Air Force giving them the funds for the purchase of 127 engines.

Mr. BALWAN. The action at that time was set up by a request for that many engines.

Mr. ROBACK. Does that action signify, Admiral Russell, that you had given up on the J–40 as far as first-line performance is concerned?

Admiral RUSSELL. Not necessarily. It certainly is indicative of the fact that we were losing hope.

Mr. ROBACK. What would have happened if the J–40–10 had come through a year later or at the time you canceled the contract? Suppose the J–40–10 had come through; what would you have done?

Admiral RUSSELL. If the 40 had come through with flying colors we could have shifted back to it. We had 60 airplanes that could have taken it anyway if it turned out to be a better engine.

Mr. ROBACK. You would then have terminated the contract for the J–71?

Admiral RUSSELL. Probably.

Mr. BALWAN. Mr. Chairman, on that point, we have information that is stamped "confidential" here and I hesitate to use it. It is information that is different from that received in the testimony on the date when the Air Force actually permitted its contract with Allison to provide the J–71.

Mr. HOLIFIELD. Let Mr. Morgan hand this to Admiral Russell and find out whether this is still confidential.

Admiral RUSSELL. There is no objection to that, sir. The date there is April. And I would like to point out that you asked the Air Force to do it in December. It starts getting done but the contract eventually, after all the negotiations take place, could be as late as April.

Mr. HOLIFIELD. The corrected date will be placed in the record.

Mr. ROBACK. Do you have any backup information to support the decision on putting the J–71 in at point 60, No. 60 aircraft?

Admiral RUSSELL. Yes, sir.

I have given it in general terms in my statement. The number of fuselages on the line, the rest of it is the flow of material, material which has been cut and would have to be scrapped if it were not used.

It is a delicate balance where you stop a production line. As I pointed out the production had been slowed as we got into engine trouble. It had been repeatedly slowed down. Finally at the time when the decision was made to go to the J–71, No. 61 appeared to be the best point at which to introduce the change.

Mr. ROBACK. What were the objections to canceling the other contract a year earlier than it was done?

Admiral RUSSELL. The engine contract?

Mr. ROBACK. The J–40 contract, that is right.

Admiral RUSSELL. We have too many occasions when you get caught in a production line in this fashion. Whenever you can you back up one engine with another.

Mr. ROBACK. You weren't sure of either so you were using both to reinforce each other?

Admiral RUSSELL. That is correct.

Mr. ROBACK. Do you have any backup information to support the decision to back fit half of the remaining F3H–1's?

Admiral RUSSELL. This decision still has not been made.

Mr. ROBACK. That decision is to be made?

Admiral RUSSELL. That decision is to be made. We have back fitted four. We have 26 to do. But the question remains with the greater production of the J–71 engines, is it not better to hold this as a war reserve idea and continue with the production line until you get ahead with your engine production and then you can back fit.

Mr. ROBACK. If there were an emergency you would then do the back fitting?

Admiral RUSSELL. You would step up your rate of engine production terrifically and there would be engines available and you would be using every airframe.

Mr. ROBACK. If there were no emergency, it is quite possible that you won't back fit any of those?

Admiral RUSSELL. This could be. It is a matter of time. It can be done. It will depend on the circumstances of the time in our best judgment what to do.

Mr. RIELMAN. I would like to ask a question, concerning the other 25 planes that apparently have the J–40 motor in.

Admiral RUSSELL. Yes, sir.

Mr. RIELMAN. That you are going to use for training purposes?

Admiral RUSSELL. Yes, sir.

Mr. RIELMAN. Do you feel that with the advances that you are now making with the J–71, and also with the terrific advance we are making with jet-propelled motors, that that is a wise decision to use those motors and the equipment that is with them for training our mechanics in that field of activities?

Admiral RUSSELL. Yes, sir, I do.

Mr. RIELMAN. Do you feel that the basic theory of this J–40 jet motor will be continued on for some years to come and that the train-

ing that we are giving our boys in mechanics in that field is a wise expenditures?

Admiral RUSSELL. I am very sure that the axial-flow engine will continue, sir.

Mr. RIEHLMAN. You don't feel that the use of these planes for that purpose then will tend to train our boys in a field of mechanics and logistics that won't be used immediately in the future?

Admiral RUSSELL. No, sir. It will be used. I would like to point out some of the uses. As I say for these 25 aircraft we have had, we have had almost a hundred requests. There are all sorts of things that need to be researched in in modern aircraft.

One of the projects is the vibration study in high speed; you get shock waves and there are very few high-speed constructions that can be toyed around in a lab. There is a great demand. What comes out of this may mean a million dollars in the future. Another thing is what is the vulnerability of our modern aircraft design. Some of these requests were from people who wanted to shoot them up with modern weapons to see what our armor would take in the air. There are a hundred requests for these 25 aircraft.

When we have lost these pilots why should we continue with this airplane and those engines when you have demands on the side like these? There is another factor. Every model that goes into the fleet has to be backed up with a great, long line of spare parts.

It has to be maintained. It isn't just an aircraft. It is an aircraft with its backup. This is a very expensive business. It runs about a quarter of the cost of the aircraft.

The engine and structural spares go with a different type of aircraft. We are making very strenuous efforts right now in my Bureau to simplify and get further different types in the fleet. This would be a small order of a different airplane.

Mr. RIEHLMAN. The 26 J–71 engines that you are considering converting, you say that they can be?

Admiral RUSSELL. Yes, sir.

Mr. RIEHLMAN. I think in response to one of the staff member's questions, that decision has not been made that you are going to do that.

Admiral RUSSELL. That is right, sir.

Mr. HOLIFIELD. May I interrupt at that point to say that while you are certainly justified in making any salvage value you could make in these planes, is it not true that this is a very expensive procedure to use planes that cost a million and a half dollars for shooting-up tests and vibration tests?

Admiral RUSSELL. If you look at the research and development budgets you will find that this sort of business comes high.

Mr. HOLIFIELD. I realize that it comes high but I certainly think you should get any value advantage out of it that is possible. To take expensive planes like this for test purposes, it seems to me, is going rather far afield.

Admiral RUSSELL. Mr. Chairman, that is one reason we are not farther head in our military effort in this country. We have not been bold enough to do such things as this.

Mr. HOLIFIELD. Well, of course, I think that there are other methods of testing vibration of engines without——

Admiral RUSSELL. This is a structural vibration of a supersonic airplane, sir. How do you test anything but a supersonic airplane?

Mr. HOLIFIELD. Then you are going to fly these at supersonic speeds to test them?

Admiral RUSSELL. No, sir. The vibration is imposed on the structure to find out what happens on the ground.

Mr. RIEHLMAN. Is it necessary to use as many as 25 planes for that purpose?

Admiral RUSSELL. No, sir. This is only one of the purposes. They wanted, I think, 10 for this purpose, something like that. They would be happy to have 10.

Mr. RIEHLMAN. You have 25 allocated for such purposes?

Admiral RUSSELL. Yes, sir, we have.

Mr. RIEHLMAN. The decision has not been made yet as to what they will be used for?

Admiral RUSSELL. The first 21, yes.

Mr. RIEHLMAN. They will be used for what?

Admiral RUSSELL. They are going immediately to the training command at Memphis, our Naval Air Training, Technical Training Command.

Mr. RIEHLMAN. The other four?

Admiral RUSSELL. Probably—we have another very urgent requirement and that is as you know this arresting gear has to be tested, and that is one purpose.

The other 4 are—there are 3 at Patuxent and 3 at Johnsville.

Mr. ROBACK. In addition to those 25 planes, there is a total of 174 engines which have been accepted by the Navy, raising a problem of disposal.

We might inquire at this point, what will be the ultimate disposition of the 174 engines?

Admiral RUSSELL. Some of them will go with the airframe. Here is an inventory. There are two projects.

Mr. ROBACK. If there are any classified projects, can you indicate the number of planes attached to them?

Admiral RUSSELL. Let me say that the training command at Memphis gets 21. This I have said before. The crash losses come out of that. There have been 8 lost in crashes. We have good purposes and other activities for some 26 of them. I am afraid I can't give you beyond this except in executive session. There are some interesting applications.

Mrs. GRIFFITHS. Does the test destroy the engine?

Admiral RUSSELL. Not necessarily.

Mrs. GRIFFITHS. If it does not destroy the engine, then you could use good engines to test and then use them in the planes couldn't you?

Admiral RUSSELL. It is much better to use an engine of this type that you have no requirement for than say a J–71 which you want in a first-line aircraft.

Mrs. GRIFFITHS. It is not necessary to build a bad engine to test?

Admiral RUSSELL. In gunfire tests you want the engine against the structure and turning over to develop its full capacity to see what happens. In testing arresting gear, we have, when the plane goes into the gear, the engine is turning over and you want the same effect.

Mrs. GRIFFITHS. The point I am making is: Is it necessary to build a bad engine to test? You could have a good engine.

Admiral RUSSELL. I wish we had not built any bad engines.

Mr. ROBACK. Are you in position to say how many of these will be disposed of as excess?

Admiral RUSSELL. No, sir, we are not that far along.

Mr. ROBACK. Can you say whether any of these will be disposed of as excess?

Admiral RUSSELL. Just sold on the open market?

Mr. ROBACK. By excess I assume that they would be surplus to the needs of the Navy. Whether they would be surplus to the needs of the whole military——

Admiral RUSSELL. I can't say yet.

Mr. GARMATZ. You spoke about so much money being spent for research. We realize you spent quite an amount of money and also that the Air Force spends a lot on their research and development.

Is there any interchange of information or anything of that sort between Navy and the Air Force?

Admiral RUSSELL. Yes, sir; there certainly is.

Mr. GARMATZ. On the progress of the engines—and with the Army?

Admiral RUSSELL. Yes, sir; there is the most intimate exchange of information. And there is the most intimate exchange of information on our contracting. Everything we do in Naval Aviation is very closely geared to what the Air Force does.

Mr. GARMATZ. You sit around the table and discuss these matters?

Admiral RUSSELL. Yes, sir, I do. I see General Irvine very frequently; he is my opposite in the Air Force staff.

Mr. HOLIFIELD. You spoke of backfitting for four of these planes a few minutes ago. What is the approximate cost per plane for backfitting? Are you backfitting for 4 or 30?

Admiral RUSSELL. We backfitted 4 of the second 30. It looks offhand it will be about $450,000.

Mr. HOLIFIELD. About $450,000 each?

Admiral RUSSELL. This is just an estimate, sir.

Mr. RIEHLMAN. Mr. Chairman?

Mr. HOLIFIELD. Mr. Riehlman.

Mr. RIEHLMAN. Following up Mr. Garmantz' questioning, Admiral, I wonder if in the desire for air superiority in operation of different services of the Defense Department and the desire on the part of the different services whether or not that interferes with free exchange of information about this research and development program among you?

Admiral RUSSELL. I don't think so.

I have had the honor of sitting—my previous job in Washington which was about 2 years ago—sitting on research and development committees. I have personal friends in the Air Force. I fly with them. Believe me, I don't think they hold very much out on us.

Mr. RIEHLMAN. I understand that there is a very friendly feeling but there is also a very friendly competition between the two services.

Admiral RUSSELL. Which I think is wholesome, sir.

Mr. RIEHLMAN. I am not disagreeing with that.

I think it is. When that interferes with development that is another issue.

Admiral RUSSELL. Absolutely.

Mr. RIEHLMAN. If there is any indication of it? That is what we would like to know.

Admiral RUSSELL. I have none, sir.

Mr. ECKHART. How do you keep track of the first 60 aircraft that have been produced?

Admiral RUSSELL. How do we keep track of them?

Mr. ECKHART. How do we distinguish one from the other?

Admiral RUSSELL. Each aircraft in the Navy has a Bureau of Aeronautics serial number. It remains that. We keep copies of the logs. I have the logs of the A–1, the Curtis Pusher Airplane in my desk.

Mr. ECKHART. Could we use consecutive numbers from 1 to 60 just for the moment?

Admiral RUSSELL. Yes.

Mr. ECKHART. Which aircraft were modified to the F3H–1N prototype configuration?

Admiral RUSSELL. Do you have the serial number?

Colonel BOLT. Using numbers 1 through 60 they would be 32 and 34. We also outfitted Nos. 31 and 33 with the J–71 engine but we did not put the T–2 wing on those. So when we speak of F3H–2, it is restricted to Nos. 32 and 34.

Mr. ECKHART. I was wondering in connection with this whether it was possible to modify and install the J–71 engine into production model 31, 32, 33, and 34.

Why could not a halt be made at model No. 30 and allow 31 through 60 to be equipped with the J–71 engine?

Admiral RUSSELL. I will answer that question. One of the changes is a slightly different wing. That comes in with the 61 model too.

Mr. ECKHART. When was it discovered that you needed a new wing?

Admiral RUSSELL. By flying these early F3H–1. They have been through this carrier trial. We have had them in all the normal evolutions. And there have been some modifications in the wing. The wing has a little greater area and the aerodynamic characteristics have been changed. This is a very exacting area of design when you are going supersonic. We don't know how airplanes will behave in this area.

Mr. ECKHART. What occasioned the wing change?

Admiral RUSSELL. Better performance in the air. I will give you a detailed analysis in executive session if you want.

Mr. BALWAN. Coming back to the question Mr. Riehlman asked, what Navy planes are there in existence today that use an Air Force engine aside from the J–71?

Admiral RUSSELL. All our FJ3's use the Wright engine which are contracted through the Air Force. The little Skyhawk uses a Wright engine.

Mr. BALWAN. What is the FJ3?

Admiral RUSSELL. F2H3 uses 2 Westinghouse 34.

Mr. BALWAN. Is that the Fury?

Admiral RUSSELL. The Fury is the——

Mr. BALWAN. FJ2 is the Fury and FJ4 is the Fury?

Admiral RUSSELL. The whole of J series is Furies.

Mr. BALWAN. One of them does use an Air Force engine.

Admiral RUSSELL. 2 has a GE Air Force engine. The –3 has a Wright Air Force engine. That is engines procured through the Air Force.

Mr. BALWAN. So the Navy does have some of its front-line planes equipped with engines developed for the Air Force?

Admiral RUSSELL. I should explain that during World War II——

Mr. BALWAN. I don't care to develop this, Mr. Riehlman. I thought this may be a way of going at it further in actually demonstrating what they have done in that area. We can drop it if it is not necessary.

Mr. RIEHLMAN. I would like to have his explanation.

Admiral RUSSELL. We divided up the primary craft engine manufacturers between the Navy and the Air Force. Pratt & Whitney, Westinghouse, are Navy contractors. Air Force is General Electric and Allison and Wright. So we do the contractual business, inspection, and what not at two of these outfits. The Air Force does them at three. If we want the J–65 engine, we write out a request on the Air Force and they make the contractual arrangement, inspect the engine, and so forth, to our satisfaction at the Wright plant.

Mr. BALWAN. It is really called an Air Force engine developed by the Air Force, much as you can always say the J–40 was a Navy-developed engine. You followed this thing through and what the development was. It would have been a Navy engine even if you had worked this out with GE.

Admiral RUSSELL. It is really a Westinghouse-developed engine and a GE-developed engine. The contracting agency for the Military Establishment just happens in one case to be Navy and in the case of GE Air Force.

Mr. BALWAN. Then I am incorrect in characterizing these as "Air Force" or "Navy" engines?

Admiral RUSSELL. Yes.

You will notice there is an odd and even number. The even numbers belong to the Navy and the odd numbers to the Air Force.

Mr. BALWAN. You have some odd-numbered engines which the Navy is using in its line of aircraft.

Admiral RUSSELL. Yes, sir; J–71, J–65, J–47.

Mr. BALWAN. Those would designate that they are engines developed for the Air Force?

Admiral RUSSELL. Originally.

Mr. BALWAN. That answers my question.

Mr. ROBACK. Admiral Russell, you made reference to procurement during the Korean emergency. What was the time when the Goodyear contract was placed?

Admiral RUSSELL. I have that right here. January 1951.

Mr. ROBACK. What was the time it was terminated?

Admiral RUSSELL. March of 1952.

Mr. ROBACK. There was a termination of the contract during the time that the Korean emergency did not show any signs of subsiding?

Admiral RUSSELL. That is correct. We shifted it to Temco.

Mr. ROBACK. The reason you give for it is a more suitable mobilization potential?

Admiral RUSSELL. Right, sir.

Mr. ROBACK. You are not there referring to the immediate critical situation in Korean. You are talking about mobilization.

Admiral RUSSELL. It is really both. Goodyear has a specialty which they are doing for us and we wanted to use that plant for that purpose. It did have capacity initially to do this job, then it looked as if we should reserve the work of Goodyear to a specific purpose and take this out and give it to a fellow who was more or less in the general business of making airplanes, Temco, and this was done.

Mr. ROBACK. At a stated cost—that termination information is not classified, is it?

Admiral RUSSELL. The amount, no. That is published; it has been published.

Mr. ROBACK. It was developed——

Admiral RUSSELL. At a cost of $302,000.

Mr. ROBACK. $302,000 for a contract that was let and terminated in a period of several months?

Admiral RUSSELL. Yes, sir; that is the price of bad judgment.

Mr. ROBACK. A question has been raised with respect to the termination of the Ford contract. What is the situation regarding the termination charges on the Ford contract?

Admiral RUSSELL. I only have an estimate, a vague estimate. I am not aware of it. We are in process and we don't have the figures.

Mr. HOLIFIELD. What about the Temco termination?

Admiral RUSSELL. Is it complete?

Mr. CRICKENBERGER. We have settled some $6 million. We estimate the entire settlement will not exceed 8½ to 10 million.

Admiral RUSSELL. It was not settled.

Mr. ROBACK. You refer in page 8 of your statement to when the Temco contract was terminated, due to the anticipated cease-fire in Korea and consistent with a general reduction in aircraft procurement. What is the context in which you make the statement, general reduction in aircraft procurement? Was that a Department of Defense policy to cut back on your airplane program?

Admiral RUSSELL. At this time, you will remember, at the time of Korea we don't know what the ends of Korea might be. It could be a general war. So during Korea we took steps to insure production of combat aircraft. In anticipation of the armistice, the armistice was practically here and the world situation was stabilizing, and at that time my Bureau cutback and withdrew from the full war mobilization plan to a specific at McDonnell.

Mr. ROBACK. The contract was cut back in November 1954; that was a year and a half after the general cutback in procurement. Do those two sentences have any relation?

Admiral RUSSELL. What is the location of the text?

Mr. ROBACK. On page 8 you point out that the Navy in 1953 canceled the Temco contract, and then in November 1954, which is a year and a half later, the McDonnell contract was cut back.

Admiral RUSSELL. This is due to pessimism over the development of the engine and the general situation with reference to the particular airplane.

Mr. ROBACK. Why wasn't the McDonnell contract cut back in May of 1953?

Admiral RUSSELL. We still hoped. We still had the requirement in the fleet for the airplane.

Mr. ROBACK. When did you cut back the production contract with Westinghouse?

Admiral RUSSELL. I think we have that date.

I regret I don't have it in mind here. I have September 1953 termination of development contract, J–40.

Mr. ROBACK. When was the J–40 contract finally terminated?

Admiral RUSSELL. The J–40 contract is not finally terminated yet. It is terminated, yes, excuse me, but the conditions of termination are not yet determined. They are still being negotiated. It was terminated what date, please? Who has the date on the termination?

Mr. CRICKENBERGER. July 1955.

Admiral RUSSELL. July 1955 was the final determination of the J–40.

Mr. HOLIFIELD. That was the notice of termination, was it?

Admiral RUSSELL. That was when we expected the contractor to stop all action on it and then we go about the business of cleaning up what we owe him.

Mr. HOLIFIELD. Why was that not included in your statement?

Admiral RUSSELL. Because I thought this was addressed primarily toward the F3H situation.

Mr. HOLIFIELD. Was not the Ford contract for the J–40 engine supposed to go into the F3H?

Admiral RUSSELL. Yes; but it was in anticipation of a much broader application than the F3H.

Now the Ford contract—I have a record here—was terminated February 26, 1953. There were two contracts. The final one was April 3, 1953, by my records, sir.

Mrs. GRIFFITHS. When was the notice of termination sent to Westinghouse?

Admiral RUSSELL. When was the notice of termination sent to Westinghouse?

Captain BLAMPHIN. The last one?

Admiral RUSSELL. On the last contract; yes.

Captain BLAMPHIN. A dispatch on the 27th of July 1955.

Admiral RUSSELL. Last 27th of July?

Captain BLAMPHIN. Terminated 38 engines.

Admiral RUSSELL. The last vestige was erased at that point.

Mrs. GRIFFITHS. Was that the original notice of termination?

Admiral RUSSELL. No, ma'am.

Mrs. GRIFFITHS. When was the original termination?

Admiral RUSSELL. Many dates, many different engines.

Admiral BEARDSLEY. I will give you two contracts. Each one of the termination. The first one was for contract No. 10385, to be terminated six–12—this is all J–40 engines; six J–40–12 engines on July 18, 1952. To be terminated two–1 engines on August 28, 1952. We terminated three–10 engines on December 29, 1952. We terminated one–10 engine and one –12 engine on May 1953. We terminated six –6 engines on May 26, 1953. We terminated under this contract thirty-eight –22 engines on July 27, 1955.

The next contract which is No. 52–048 we terminated 149 –12 engines on April 25, 1952. We terminated 31 –12 engines on July 21, 1952. We terminated 146 –24's and the 572 –26's on September 3, 1953. We terminated 327 –22's on September 30, 1953. The heavy terminations in number which is on the second contract here to the total of 1,215 engines, the last date of which was September 30, 1953.

Mrs. GRIFFITHS. Were they told to cease production right then or were they given time to run off some of them after that period?

Admiral BEARDSLEY. Each time we make a termination of contract, we get the contractor to advise us as to where in the production line it looks like it is the best point for the Government to make the termination. We ask our Bureau of Aeronautics representatives in the contractor's plant to furthere examine that and give us his independent judgment from the contractor's point of view and we in the Bureau appraise that and use our best judgment. That is the way we make every termination of the contract.

Mrs. GRIFFITHS. So there had been a previous notice to them that you were going to terminate?

Admiral BEARDSLEY. In some cases they knew it and in some cases that came as a cruel surprise. In most cases they knew this was coming along, yes.

Mr. LIPSCOMB. Could we have the same type of rundown on the Ford contract?

Admiral RUSSELL. Do you have the Ford contract? There were two I believe.

Admiral BEARDSLEY. Termination No. 1, dated February 2, 1953, was for 293 –22 engines. Termination notice No. 2 of April 3, 1953, was for 272–24 and 142–26, all of 1953.

Mr. LIPSCOMB. Did Ford ever manufacture or deliver any of these J–40 engines?

Admiral RUSSELL. No. They went into the preliminary motions of getting into production.

Mr. HOLIFIELD. Did they tool up?

Admiral BEARDSLEY. These costs were involved in setting up the organization, getting the engineering staff and the production people together, tooling up, setting up subcontract structure, and actually placing orders for material. They did not deliver to my knowledge any complete engines or complete components as far as I know.

Mr. HOLIFIELD. You are not ready to announce what the cancellation costs are there?

Admiral BEARDSLEY. It is still under negotiation. It will not exceed $15 million as we estimate it today.

Mr. LIPSCOMB. Which engine did they contract for, the WE–8 or WE–10?

Admiral BEARDSLEY. We were planning to have them build some –22, some –24 and –26, different combinations to meet our total requirements.

Mr. LIPSCOMB. Who furnished the specifications to the Ford Motor Co.?

Admiral BEARDSLEY. Westinghouse, on a licensee agreement with Ford.

Mr. ROBACK. On an engine that never had been built. This engine has never been built and is not built today.

Admiral RUSSELL. This is a hazard you take if you are going to have first-line aircraft that are the best in the world you have to take some risk like that. Here we were in Korea and the J–40 engine if it had come through would have been a world beater.

Mr. LIPSCOMB. But under your present procurement production this would not happen; is that right?

Admiral RUSSELL. We would hope not but as I have said in my talk, this cannot be guaranteed. I would hope that in the future we would

have a little better engineering judgment. But you have to go back to the sense of the times to really understand this thing.

Mr. LIPSCOMB. If you have a different procurement program, as I understand it, you would not go into production contracts until you have tested and had all the arrangements made?

Admiral RUSSELL. Yes, sir.

Mr. LIPSCOMB. So under your plan now, you would not give Ford such a contract?

Admiral RUSSELL. This depends on the time. If we were in a general war I would think we would make a similar contract.

Mr. LIPSCOMB. I understand that.

Mr. ROBACK. Admiral Russell, to make the record clear, are you saying that this so-called FIRM procedure is not the same as taking a calculated risk here that you are talking about in relation to the Ford or the other contracts for which engines never have reached the stage of development or production?

Admiral RUSSELL. There is always a calculated risk but the more orderly way to do it is under the FIRM plan; the FIRM plan applies to the aircraft primarily.

Mr. ROBACK. And the plan could work successfully when the risk was less?

Admiral RUSSELL. I think that is quite evident. That is almost obvious.

Mr. ROBACK. Therefore, to compare a plan at the time when let us say, there is no Korean conflict and a time when there is one, wouldn't be a valid comparison?

Admiral RUSSELL. It would be a valid comparison. If the FIRM plan had been in operation we would not have nearly been as bad off.

Mr. ROBACK. What would you have done if the FIRM plan had been in operation with the contracts with the Westinghouse, Ford, and the other people? How would that plan have operated? Would you not have made the contracts?

Admiral RUSSELL. We probably would have let them. We would have known a little more about the engine before they were let.

Mr. ROBACK. You might have canceled them somewhat earlier?

Admiral RUSSELL. Yes; you might have.

Mr. ROBACK. You probably would not have let the production contract before the development was done; is that the idea?

Admiral RUSSELL. Depends upon the urgency of the situation.

Mr. ROBACK. And if it turned out that you had gotten the WE–10 engine of the desired thrust rating, then if this policy you now have were in effect, you would never have had an engine, you would have precluded the possibility.

Admiral RUSSELL. No, indeed. We would have had that almost as soon but we would have had it on firmer grounds.

Mr. ROBACK. Would you please explain to this committee just what the steps are, the actual steps that you have taken to improve your procurement procedure?

Admiral RUSSELL. Yes, sir.

Mr. ROBACK. What are the steps?

Admiral RUSSELL. No. 1, I have a better, more adequate, staff. We were understaffed. I have just a few more people of better quality. I have an Assistant Chief of Procurement in the person of Admiral Beardsley over here. Secondly, we have introduced, as I explained in

my talk, the FIRM plan in which we get early evaluation of an airplane. We go ahead with the tooling in a very mild sort of way until we find out what we have coming along before we have a big buildup and, furthermore, we get as early as possible a number of airplanes into the various tests.

Mr. ROBACK. You say in a mild sort of way. Isn't that tooling——

Admiral RUSSELL. It costs money, of course. But you don't go whole hog and spend great sums for great masses of tooling.

Mr. ROBACK. Am I incorrect in the understanding that the Secretary of the Navy has said that under the FIRM plan you were tooled up for production?

Admiral RUSSELL. You arrive at a tooling-up position in much better shape through the operation of the FIRM plan.

Mr. ROBACK. You are ready to go into production if the testing proves out?

Admiral RUSSELL. That is right.

Mr. ROBACK. So you are tooled up at a relatively high level?

Admiral RUSSELL. No; not immediately. You take your early models and give them a thorough test so that when you do go up to hiph production you have the model not as you first had it because when an airplane comes off the designer's table and first flies it is never the same airplane as when it goes through all the tests and has all the corrections made.

Mr. ROBACK. Suppose the airplane turns out like the F3H and J–40 combination?

Admiral RUSSELL. It would die and the tooling would be lost. That is the special tools for that particular model would have been lost.

Mr. ROBACK. So that it would not necessarily be cheaper in the long run. It might be more expensive in the beginning and more expensive in the end if the plane does not prove out.

Admiral RUSSELL. Well, you have me. I have lost your thread of reasoning there.

Mr. ROBACK. The Secretary of the Navy has said that this tooling up process before the plane is proved but is in a state of readiness for production is more expensive in the short run and cheaper in the long run. If you don't get a plane, it is not cheaper in the long run, is it?

Admiral RUSSELL. Well, yes.

Mr. ROBACK. Suppose you had a situation that occurred with the F3H J–40 combination. You have a plane. The engine was accepted by the Navy. It was put on different missions. Finally the plane had to be grounded because it is unsafe or unsuitable for flying.

Admiral RUSSELL. We would have found that our earlier in the FIRM plan by our early testing which we require now.

Mr. ROBACK. Testing by the contractor?

Admiral RUSSELL. By both the contractor and ourselves.

Mr. ROBACK. The testing procedures at Westinghouse were inadequate; that would be an inference from what you have said.

Admiral RUSSELL. Compared to the modern arrangements, it was pretty far back in the horse-and-buggy days.

Mr. ROBACK. The responsibility of the local Navy representative in following that testing and development, unless he had instructions otherwise, would have been inadequate: he could not say, "Don't take this engine"; his responsibilities would be limited.

Admiral RUSSELL. Oh, no. The Bureau of Aeronautics representative's duty is to make full reports to me. We would consider his judgment in any reports that he passes back to the Bureau. Otherwise there is no reason for having him out there.

Mr. GARMATZ. Admiral, before we spoke about the Goodyear contract being terminated, then in the same paragraph you say there was a contract made with Temco. When was the contract with Temco started, and when was it terminated?

How many engines were delivered and what was the cost of termination?

Admiral RUSSELL. I would like my assistant chief to recite those dates if he has them. I can give you the contract. The Goodyear is January 1951.

Mr. GARMATZ. We have the Goodyear.

Admiral RUSSELL. It was terminated in March of 1952 and in the same month it was awarded to Temco.

Mr. GARMATZ. So it would be in March of 1952?

Admiral RUSSELL. March of 1952; yes.

Mr. GARMATZ. When was it terminated?

Admiral RUSSELL. June of 1953. Temco contract was terminated.

Mr. GARMATZ. At what cost?

Admiral RUSSELL. I will have to—these, of course, are only estimates. The negotiations are in process. Our estimate is not over—and I am probably giving a handsome margin here—$9 million.

Mr. GARMATZ. Are there any engines delivered in that cost of $9 million?

Admiral RUSSELL. This was an airframe contract. There were no airframes delivered.

Mr. GARMATZ. Were any frames delivered?

Admiral RUSSELL. No, sir.

Mr. GARMATZ. No frames or engines?

Admiral RUSSELL. No, sir. The engine was a different contract. Temco is the builder only of the airframe, you will understand.

Mr. GARMATZ. In other words, for the Goodyear for 15 months it was $302,000 with no deliveries of engines and with the Temco over 15 months it was $9 million without any frames; is that correct?

Admiral RUSSELL. But he had gone much further, you see. He had gigs to manufacture these thing on. He had cut material and so forth.

Admiral BEARDSLEY. I might add one point to clarify that. The Bureau of Aeronautics requested representatives of McDonnell to go down to Temco to try to salvage every piece of material we could get out of it. Everything that was salvaged could be salvaged out of the Temco proposition and used by the McDonnell aircraft.

Mr. HOLIFIELD. All right, Mr. Roback. Go ahead.

Mr. ROBACK. I see on page 9 of your statement, Admiral, that this so-called new procurement policy or procedure was put into effect. It says here:

> This need was recognized and approximately 2 years ago new procurement procedures were developed and placed in effect.

Do you want this subcommittee to understand these procedures were in effect for 2 years?

Admiral RUSSELL. They were placed in effect. The first aircraft effected by this was the F8U fighter.

Mr. ROBACK. What happened under that procedure?

Do you have any record to give to the subcommittee how that compared with the previous procedures?

Admiral RUSSELL. In this case the situation is quite different. We have a J–57 engine in which we have a great deal of confidence, and I believe this time we have an outstanding airframe.

Mr. ROBACK. No problem came up you mean?

Admiral RUSSELL. Well, you want problems, sir; yes.

Mr. ROBACK. Yes.

Admiral RUSSELL. The flame baskets inside the J–57 out at Edwards Air Force Base are cracking. We have problems. We have problems in everything.

Mr. ROBACK. How did this procedure help to solve that problem?

Admiral RUSSELL. The FIRM plan?

Mr. ROBACK. Yes.

Admiral RUSSELL. The orderly introduction, the early test, the design for production but not going into big quantities will certainly prove out in this case. We are just in the beginning stages of it. Our first production airplanes are just now flying.

Mr. ROBACK. How much experience have you had actually under the FIRM plan?

Admiral RUSSELL. Very little experience.

Mr. ROBACK. You don't know whether that plan is going to work out or not, do you?

Admiral RUSSELL. I would stake my bottom dollar that it will, sir.

Mr. ROBACK. Suppose you are presented with an emergency where you had to take more calculated risks than you may have to now, what happens to the plan?

Admiral RUSSELL. We would still use it. We would accelerate it. We would get the experimental models earlier, we hope, by working shifts. We could compress the whole schedule but we would still do the tests. It would still work under a considerable strain of demand.

Mr. ROBACK. Does the Air Force follow a similar plan?

Admiral RUSSELL. They have a similar plan. The Cook-Craigie, the fly-before-you-buy plan.

Mr. ROBACK. Are you aware of representations that this policy of fly before you buy is jeopardizing our position relative to the Soviet?

Admiral RUSSELL. I am aware that this particular system must be compressed. I consider it still usable. I think it will be usable in the Navy.

Mr. ROBACK. If the system is compressed to speed up developments and deal with emergencies, what is the distinguishing feature of the plan as compared with previous procurements?

Admiral RUSSELL. The soundest early developments. You should have an engine which has come along and you should have an airframe with a proven engine tested at the earliest possible time.

Mr. ROBACK. You do a little less flying and a little more buying, is that the idea?

Admiral RUSSELL. I would rather do it the other way around. You do your flying earlier. May I say it that way. Very importantly, you want more test planes.

Mr. HOLIFIELD. Have you heard that the Department of Defense is about to abandon this policy that you are speaking of? I am speaking of the FIRM policy. There have been stories in the newspapers, as you know, that they have formed this policy, and now they are about to abandon it. We have some clippings on our desk.

Admiral RUSSELL. I don't think we shall ever abandon anything which will give us a more orderly path toward progress in aviation. There are elements of the FIRM plan which will survive certainly.

Mr. HOLIFIELD. You have heard that they are considering abandoning it?

Admiral RUSSELL. No, sir; not in those words.

Mr. FOGLER. Mr. Chairman. There have been no instructions from the Department of Defense for any such abandonment. All of the services are being urged, if possible, with good judgment to procure what planes, engines, weapons system they need more rapidly, from the time of the early development to the delivery of the completed end product and I think——

Mr. HOLIFIELD. One of the considerations of this committee on other things, such as the ARC–21 and TACAN has been the freezing into production of research and development items before you have them at a point of meeting your requirements.

Mr. FOGLER. We are concerned with that, too.

Mr. HOLIFIELD. This is the same thing we are looking at here in this J–40. You froze it into production apparently before you had it to a point of meeting your own specifications.

I hope you can work out the system. I am for you 100 percent if you can work it out. I don't know whether you can or not.

Mr. FOGLER. We ought to keep this in mind. Under any system we cannot guarantee that there will be some limited quantity of failures proposed.

Mr. HOLIFIELD. I think that is true.

Mr. FOGLER. But what we do hope and intend to try to do is to prevent large quantities of failures ever being produced.

Mr. HOLIFIELD. Stop it before it gets into the field of two or three hundred million dollars.

Mr. FOGLER. That is right. And that we will have for test purposes more of the planes, of the engines or the weapons system for the early stages of the testing which might mean that up to a particular date the cost would be even greater than under the plan which we followed with the J–40 engine and the F3H airframe.

Mr. ROBACK. Is the Navy represented on a policy board or committee that is considering a revision of this fly-before-buy policy?

Admiral RUSSELL. We have already made a presentation as of last week in anticipation of going before the committeee. We are working up a presentation to be made and we have our own schemes for acceleration and it involves specifically the FIRM plan, what changes we need to incorporate in it, to meet the urgent demand for more rapid progress in development and getting more advanced weapons into service quicker.

Mr. ROBACK. Are you presented with the problem of eliminating some elements of the plan?

Admiral RUSSELL. We are confronted with the problem of accelerating the plan itself. We need more aircraft earlier in the game. For

example, now we make one static article, one static test article. If the static test article is loaded up and the wing breaks off, we need a second airplane to put right in there to find out where the load is that it will stand.

We know what has broken the wing off but to rebuild that wing we don't know what load is the critical load.

We need more prototypes. We need to fly them earlier, if I understand, to find out more about them earlier in the sequence, so it is a crowding of the FIRM plan over toward the earlier dates.

Mr. ROBACK. Under the kind of experience that has been recounted with regard to Westinghouse, the company has these contracts, spends large sums of money, which are in effect Government funds. Now has the Navy given any consideration to putting elements into their contract with the developer which would give the company some disincentive against this?

Admiral RUSSELL. That is a very difficult area. At some stage in the game you so load your contract with guaranties that you get no progress. There is a medium somewhere. Where you get reasonable guaranties you can hold a company to certain things.

But, believe me, progress in aviation requires that this country have teamwork between the Military Department and the manufacturer.

We don't live in the American way of life unless we do this. I don't mean to be soft toward the contractors but at the same time you have to, you can't expect them to risk all on something when there is only one customer, namely, Uncle Sam. So there is some happy medium: I do think, however, we can improve on our contracting and that is why we have reorganized slightly here. And I have Admiral Beardsley as head of my procurement, singling out procurement as a point to be strengthened in my own Bureau.

Mr. ROBACK. Do you think an indemnity clause should be written into a contract to stimulate better performance?

Admiral RUSSELL. It depends on the nature of the indemnity and what the risks are.

Mr. ROBACK. Has any such clause ever been written into your contracts?

Admiral RUSSELL. Yes; we have default clauses in our contracts.

Mr. ROBACK. What was the basis for never making a default decision against the contractor in this case?

Admiral RUSSELL. This is a very involved thing. I would have the General Counsel of the Bureau speak to it, if you would like a dissertation on it.

Mr. ROBACK. We can defer this until tomorrow, I suggest, Mr. Chairman.

Mr. HOLIFIELD. Defer this, the methods of termination.

Admiral RUSSELL. We shall be prepared for it tomorrow.

Mr. BALWAN. May I ask a question on this "fly before you buy." If the planes don't fly, then what do you buy?

Admiral RUSSELL. You should have an alternate plan. Another airplane coming along which you can take instead of that. You should have about 3 companies go right up through the prototype, build and fly 3 different types and you select 1 to put into your production.

Mr. BALWAN. I am trying to recall the testimony of the Secretary of the Navy before the Hébert committee of the Armed Services Committee in February of this year in which it was stated that if the planes don't fly, you buy the proven aircraft; is that right?

Admiral RUSSELL. If you have more than one coming along, you will take—you say the plane doesn't fly, you don't buy.

Mr. BALWAN. You don't buy. But you need planes for the fleet.

Admiral RUSSELL. Right.

Mr. BALWAN. So how are you going to keep the lines to the fleet up?

Admiral RUSSELL. This is the mistake we made at McDonnell. We sawed off before we had a replacement airplane. You meet this by continuing what you have.

Mr. BALWAN. By continuing what you have?

Mr. ROBACK. What did you have in 1950 though, or 1947?

Admiral RUSSELL. We had the Banshee.

Mr. BALWAN. So the answer is we should have continued with the Banshee even though the Banshee was being outflown. Or was it outflown by the MIG?

Admiral RUSSELL. The Banshee is a very good airplane. It is an excellent airplane.

Mr. ROBACK. Calculated risk with Westinghouse and the F3H program was not justified, is that what you are saying?

Admiral RUSSELL. It was justified.

Mr. ROBACK. You are on both sides of the particular issue.

Admiral RUSSELL. The poor fellow when he made the decision back there did make the correct decision. Time has proven him wrong. I think if you have had all the factors to weigh as of that time, your decision would have been the same. Look what we had to gain, we had the most outstanding turbojet engine ever to be right in our grasp there.

Mr. ROBACK. That was the policy of buy before fly; justifiable you say. Now you say it is not justifiable.

Mr. FOGLER. Don't you expect any improvement in anything to be learned over a period of 9 years?

Mr. ROBACK. What we are trying to find out, Mr. Secretary, is what are the specific differentiating elements of the new FIRM plan as against previous procedures where the risk is not within your control; that is, when the danger and the risk have to be taken, how does that determine how this plan is affected?

Admiral RUSSELL. I have a classified chart which we can go into detail in executive session on our procurement methods and how we can accelerate the time.

Mr. HOLIFIELD. We want to see that chart.

Mr. HOFFMAN. Before you get through tonight I would like about 3 or 4 minutes.

Mr. HOLIFIELD. Go ahead now.

Mr. HOFFMAN. Because the people get much of their information and form a conclusion upon information which is given them by the press and if I understand correctly, the Navy stands charged with having wasted I don't know how many millions of dollars, but some, in buying planes that could not get off the ground, is there anything further in your statement that you would like to say?

Admiral RUSSELL. The airplanes did get off the ground; they can be flown.

Mr. HOFFMAN. They what?

Admiral RUSSELL. The airplanes did get off the ground. They have been flown. We had some 1,200 hours.

Mr. HOFFMAN. I noticed one of the reporters did this, intimating that they cracked. I understand 5 of them did. Any more than that?

Admiral RUSSELL. Of the completed type, there were more crashes.

Mr. HOLIFIELD. It is not getting them off the ground; it is keeping them up there.

Mr. HOFFMAN. You have some obligation to the people, haven't you, other than just saving dollars?

Admiral RUSSELL. Absolutely, sir.

Mr. HOFFMAN. That is to say sometimes it comes to an issue as to whether you will furnish a weapon even if it is not the best one.

Admiral RUSSELL. The reason we grounded these airplanes is the protection of pilots.

Mr. HOFFMAN. If it is a choice of a million dollar loss and the life of the man and you have to make a decision.

Admiral RUSSELL. We lose the million dollars.

Mr. HOFFMAN. There is no hesitancy about it.

Admiral RUSSELL. No, sir.

Mr. HOFFMAN. You would welcome any suggestion from a reporter, member of the staff, or any bystander, how you would do a better job?

Admiral RUSSELL. Yes, sir.

Mr. HOFFMAN. In view of the fact that these charges have been made and it is up to the committee to evaluate the testimony I would like to have whoever is the secretary or assistant secretary put into this record a concise but nevertheless complete statement of the experience of these men.

I would like to know who they are, where they got their education, not only in the Academy and their subsequent experience, especially that part of it that has to do with combat service.

Mr. HOLIFIELD. What men are you speaking of, Mr. Hoffman?

Mr. HOFFMAN. The witnesses and especially the individuals here who determined the policy of the Navy in this procurement and the cancellation, the whole thing all the way through, because you see, ultimately at least in my mind—I suppose in the others that will be called upon to find the facts—I want to know.

Mr. HOLIFIELD. This has been going on for several years since 1947. Admiral Russell has only been, as I understand it, the head of this department for about 3 months, isn't that right?

Admiral RUSSELL. I came in March, 7 months.

Mr. HOLIFIELD. In March of this year.

Mr. HOFFMAN. But he must bring to his job his previous experience.

Mr. HOLIFIELD. We have no objection to any autobiography, any material that any of these gentlemen wish to put in about themselves.

Mr. HOFFMAN. Whether they wish it or not. Perhaps they are unduly modest, I would like to know the background.

If I am to judge between what they say and how someone else judges the things, as I said before from a Monday quarterback position, I want to know who really knows. I assume that there is no question at all about the patriotism of these gentlemen or their efforts to serve their country.

We accept that of course. You see what I am getting at?

Admiral RUSSELL. Yes, sir.

Mr. HOFFMAN. I want to know whether you know what you are talking about. I certainly don't. I assume some other people don't I assume there are even some reporters here who write stories that don't know what it is all about. I would like to have his background.

Mr. HOLIFIELD. I will be glad to have it.

Mr. HOFFMAN. You bet. Certainly a man who has been in the service and on a ship when the shells are flying can't be accused of a lack of interest.

Mr. HOLIFIELD. We are interested in procurement practices, not in men at this time. We are interested in the procurement practices, that is the subject of this committee. We are putting no one on trial as an individual.

Mr. HOFFMAN. That is right.

Mr. HOLIFIELD. We are putting on trial——

Mr. HOFFMAN. The system.

Mr. HOLIFIELD. The system of procurement and we have asked these gentlemen to indicate to the subcommittee what they have done to cure this and they have said that they have done certain things.

Mr. HOFFMAN. And anything in their record which would show they have an exceptional desire over and above what I have, for example, never having been in combat service to serve the country we should have that. If any one is interested, they certainly are.

Mr. FOGLER. We will submit it.

Mr. HOLIFIELD. If you gentlemen will supply that material for Mr. Hoffman, we will be glad to accept it.

Mr. HOFFMAN. For the subcommittee.

Mr. HOLIFIELD. We will accept it as part of the subcommittee's proceedings.

(The material referred to is as follows:)

THE ASSISTANT SECRETARY OF THE NAVY FOR AIR,
Washington, October 24, 1955.

Memorandum for Chairman, Subcommittee of the House Committee on Government Operations

My name is James H. Smith, Jr., and I am Assistant Secretary of the Navy for Air, and have held that position since July 1953. My duties in the Department of the Navy are concerned with research and development, atomic energy, and particularly with the aeronautical side of the Navy. I became a civilian pilot 28 years ago, a military pilot 26 years ago, and remain an active pilot today, with several thousand hours of experience in a wide variety of fixed and rotating wing aircraft and with reciprocating, turbojet and turboprop engines, as well as such advanced types of propulsion as the ramjet and ducted fan.

I have spent most of the 28 years since I became a pilot concerned with the problems of getting airplanes to do new things faster and more efficiently. In civilian life I was directly concerned with the inauguration of the first commercial transatlantic flights, the first round-the-world passenger flight, and the development of airlines through Africa. This work involved not only developing the proper aircraft for the particular job but also the organization whereby that aircraft could be kept operating far from its main base in almost any part of the world. In military life I have been a Naval Reserve aviator and flew four or five hundred hours in combat carrier squadrons during World War II. My work is of a technical nature and I have a very small staff consisting of four highly qualified aviators.

I am a member of the Institute of Aeronautical Sciences and of the Royal Aero Club, England, and a former vice president of Pan American Airways and a former director of Slick Airways.

Biographic Sketches

RUSSELL, REAR ADM. JAMES S.

After graduation from Naval Academy in 1926, remained there for summer course in aviation.

Following 2 years on U. S. S. *West Virginia*, returned to United States for flight training at the naval air station, Pensacola, Fla. Designated naval aviator No. 3495 in July 1929.

Detached from Patrol Squadron 1, fleet airbase, Pearl Harbor, in May 1932, for instruction at the Postgraduate School, Annapolis. Attended courses in general line and aeronautical engineering, completing the latter at the California Institute of Technology, from which he received the degree of master of science in June 1935.

Assumed command of Patrol Squadron 42 on August 16, 1941, which he was commanding when the United States entered World War II. For outstanding services in that command was awarded the Distinguished Flying Cross, the Air Medal, and the Legion of Merit with combat V.

Led the first naval air unit ever to base on and operate from Nome. During task-force operations directed toward the bombardment of Kiska, he personally led units of his squadron at night in instrument weather.

Patrol Squadron 42 was awarded the Navy Unit Commendation for its part in the early Aleutian campaign.

After a brief assignment in the Office of the Chief of Naval Operations where he had duty in connection with the advanced aviation basic training program, he was transferred to the Bureau of Aeronautics as head of the Division of Military Requirements on December 30, 1942.

Became chief of staff to commander, Carrier Division 2, operating in task groups with Task Forces 38 and 58, and for "exceptionally meritorious conduct (in that capacity) from August 1944 to March 25, 1945, * * *" was awarded a Gold Star in lieu of the second Legion of Merit with combat V.

In April 1945 he became aviation assistant to the deputy commander, United States Pacific Fleet and Pacific Ocean Areas.

Assumed command of the U. S. S. *Bairoko* in June 1946. Upon detachment from that command in May 1947 assumed duty with the United States Atomic Energy Commission. Was awarded a Gold Star in lieu of the third Legion of Merit for "exceptionally meritorious conduct * * * as test director and commander, Task Group 7.1, Joint Task Force 7, Operation Sandstone, from October 20, 1947, to May 27, 1948."

Served as head of the Weapons Branch, and later as Deputy Director, Division of Military Application, United States Atomic Energy Commission, until February 1951 when he assumed command of the U. S. S. *Coral Sea*. During his period of command, the U. S. S. *Coral Sea* served for 6 months as a unit of the United States Sixth Fleet in Mediterranean waters. In August 1951 the U. S. S. *Coral Sea* was awarded the battle efficiency E for proficiency by commander, Air Force Atlantic Fleet.

Detached from command of the U. S. S. *Coral Sea* in March 1952, he reported to the Office of the Chief of Naval Operations, where he served as head of the Military Requirements and New Development Branch, Air Warfare Division, until July 1953, when he assumed duty as Director of the Air Warfare Division.

In May 1954 he became commander, Carrier Division 17.

October 1954 transferred to command of Carrier Division 5.

Assumed duties as Chief of the Bureau of Aeronautics March 4, 1955.

DIXON, REAR ADM. ROBERT E.

Graduated from Naval Academy June 2, 1927.

Following graduation he remained there for the summer course in aviation.

Flight training at naval air station, Pensacola. Designated naval aviator July 28, 1930, and assigned to Scouting Squadron 5, aviation unit of the U. S. S. *Memphis*.

Served in the flight test section, naval air station, Anacostia, D. C., and was then assigned command of the U. S. S. *Avocet*.

Relieved of command of the *Avocet* in July 1941, he became commanding officer of Scouting Squadron 2 based on the U. S. S. *Lexington* and was serving there when the United States entered World War II. Participated in the early actions of the war including the Battle of the Coral Sea when the *Lexington* was sunk as a result of enemy action. For his services in the action of May 10,

1942, when planes from the *Lexington* and *Yorktown* struck at Lae and Salamaua in New Guinea from the Gulf of Papua, he was awarded the Navy Cross, and for his courageous devotion to duty during the Coral Sea action, he received a Gold Star in lieu of the second Navy Cross.

Citation for Gold Star in lieu of second Navy Cross reads, in part: "With an enemy carrier as the objective, he led his squadron on a determined dive-bombing attack in which Lieutenant Commander Dixon dove to a low altitude and, in the face of heavy antiaircraft fire and enemy fighter opposition, he dropped his bomb on the deck of the carrier, thereby aiding in the total destruction of that vessel."

Served for a brief period on the YORKTOWN before being assigned to the aircraft carrier training group at the naval air station, San Diego, Calif.

Joined the staff of commander, Task Force 38, South Pacific (later Carrier Division 1), to serve as operations officer, until April 1944. During this period he served aboard the *Enterprise*, *Saratoga*, and the *Bunker Hill*, participating in most of the major carrier actions of the war.

Returned to United States in June 1944 and reported as head of the Military Requirements Division, Bureau of Aeronautics, and was later designated Chief of the Aircraft Subsection, Aviation Military Characteristics, Office of the Chief of Naval Operations.

From August 1947 to June 1948 he served as chief of staff and aide to commander, Carrier Division 1, after which he commanded the U. S. S. *Palau*.

In June 1949 became commanding officer, naval auxiliary air station, Cabaniss Field, Corpus Christi, Tex.

Asigned duty as Director of Flight Test, Naval Air Test Center, Patuxent River, Md., in July 1950 where he remained until June 1952 when he assumed command of the U. S. S. *Valley Forge* operating in the Korean combat area.

Served as Director, Aircraft Division, Bureau of Aeronautics, and became Assistant Chief of the Bureau of Aeronautics for Plans and Programs in September 1955.

BEARDSLEY, REAR ADM. GEORGE F.

Born in Arlington Heights, Ill., October 26, 1907.

Graduated from the Naval Academy and commissioned ensign in the United States Navy June 8, 1929.

Reported to the U. S. S. *Lexington* in 1929 and has spent his entire career in naval aviation.

After designation as a naval aviator in January 1931, he served in scouting and fighter squadrons on both the U. S. S. *Lexington* and U. S. S. *Saratoga* during the early 1930's.

From 1934 to 1936 was assigned to the assembly and repair department at the naval air station, San Diego.

From 1936 through 1939 attended the Postgraduate School at Annapolis and received his degree of master of science in aeronautical engineering from California Institute of Technology.

The following year and one-half he was senior naval aviator on the U. S. S. *San Francisco*.

Served 2 years in the overhaul and repair department at Jacksonville, Fla.

From 1942 to 1944 was assigned as assistant fleet aircraft maintenance officer on the staff of commander, air force, United States Pacific Fleet. For this duty he received a ribbon of commendation with authorization to wear the Commendation Ribbon.

Following the war he served as Fiscal Division Director of the Bureau of Aeronautics for 3½ years.

He attended the Harvard advanced management program.

During the period 1949 to 1951 was director for the naval air experimental station at the Naval Air Materiel Center, Philadelphia, and for one of these years served as manager of the naval aircraft factory.

He served as director of the Production Division of the Bureau of Aeronautics from 1951 to 1954.

From 1954 to 1955 was in charge of the overhaul and repair department, Alameda, Calif.

Most of his career has been spent in the logistics and business end of naval aviation.

BLAMPHIN, CAPT. ARTHUR M.

Arthur Merrick Blamphin was born on May 1, 1906, in Bellevue, Pa., son of John Merrick and Margaret (Thomas) Blamphin. He received the degree of

bachelor of science in civil engineering from the University of Pennsylvania at Philadelphia, and was subsequently employed as an aeronautical engineer with the Permanent Working Committee of the Aeronautical Board, Washington, D. C.

On February 15, 1940, he was appointed a lieutenant in the United States Naval Reserve, and subsequently advanced in rank to that of captain, to date from November 1, 1951. He was transferred from the Naval Reserve to the United States Navy on August 7, 1947.

Called to active duty in April 1941, he was assigned to the Bureau of Aeronautics, Navy Department, Washington, D. C. He remained there throughout World War II and until July 1948 when he reported for duty at the Naval Air Materiel Center, Philadelphia, Pa. Ordered in June 1950 to Alameda, Calif., he served at the naval air station there until October 1950, when he was again assigned to the Bureau of Aeronautics for duty as head of the Technical Data Division of that Bureau.

Captain Blamphin has the American Defense Service Medal, the American Campaign Medal, and the World War II Victory Medal.

His usual address and that of his wife, the former Maude Elinor Hughes, of Oakmont, Pa., is 2425 North Quintana Street, Arlington, Va.

DIETRICH, CAPT. HENRY THORNTON

Graduated from Naval Academy June 3, 1926.

Aviation instruction at naval air station, Pensacola, and designated naval aviator in May 1929, following which he had duty with torpedo squadron 1–B operating first with aircraft squadrons, battle fleet, and later with Carrier Division 2, United States Fleet.

Served as executive officer of naval air station, Bermuda, during first part of World War II.

Commanded the U. S. S. *Barnegat* for almost a year while that aircraft tender, in addition to servicing patrol planes, operated as a transport and antisubmarine patrol vessel off the coast of South America. In June 1944 he assumed command of the naval air station, Dallas, Tex., and remained in that command until the cessation of hostilities in August 1945.

He was detached from the *Matakinau* in July 1946, and assumed command for a brief period of the naval base, Azores.

Served as head of the Programs Coordination Branch of the Aviation Plans Division, under the Deputy Chief of Naval Operations.

After attending the Industrial College of the Armed Forces, from September 1949 to June 1950, he reported for duty as chief of staff and aide to Commander Carrier Division 15.

Reported to the Bureau of Aeronautics, Washington, D. C., as head of the Plans Coordination Division in April 1952.

Is now Executive Director to the Assistant Chief for Plans and Programs, Bureau of Aeronautics.

MURPHY, CAPT. CHARLES H. S.

Graduated from Naval Academy in 1935 and assigned to the battleship *New York*.

Flight training at naval air station, Pensacola, and designated naval aviator on June 13, 1940.

During period July 1943 to July 1944 served as technical staff officer on the Director's staff at the Naval Research Laboratory, Anacostia, D. C.

Was attached to naval forces in Europe and ALSOS Mission for Technical Intelligence from September to December 1944. The formation of the naval technical mission was due, in part, to his report on that assignment.

Served from January 1945 until the end of the war as executive officer of the U. S .S. *Barnes* operating in the Pacific area.

Upon his return to the United States he was assigned duty as superintendent of training at the naval technical training center, Ward Island, Corpus Christi, Tex., in a school for aviation-electronicsmen.

Returned to Naval Research Laboratory in April 1947 where he was head of the electronics staff until detached in June 1949 for duty in the Navy Department, Washington, D. C.

Served as head of the Electronics Design Branch, Electronics Division, Bureau of Aeronautics, where he was responsible for all naval air electronic development and engineering.

Became Bureau of Aeronautics Representative at the McDonnell Aircraft Corp. in July 1952.

Assumed duty as commanding officer and director, special devices center, Office of Naval Research, Sands Point, Port Washington, Long Island, N. Y., September 30, 1954.

SMITH, CAPT. CHARLES EDWIN, USNR

Graduated from Naval Academy and commissioned ensign on June 3, 1921.

Resigned his commission in the United States Navy on January 25, 1924. Commissioned lieutenant commander in the United States Naval Reserve on April 23, 1942; promoted to commander in February 1944, to date from December 30, 1941. Served in the temporary rank of captain from December 10, 1945, to January 1, 1948, and was again selected for captain on December 10, 1948, his nomination confirmed on April 21, 1949.

Assigned to the U. S. S. *Wyoming*, in which he served for a year while that battleship operated as flagship of Battleship Force, Atlantic Fleet.

Joined the U. S. S. *Scorpion*, in which he went to Constantinople, Turkey, when she became flagship of naval detachment, Turkish waters. Detached in August 1923, and the next month reported to the U. S. S. *Reid*, a unit of Detroyer Division 26, Scouting Fleet.

In November 1923 he reported to the Office of Naval Communications, Navy Department, Washington, D. C., where he served until his resignation became effective in January 1924.

On April 23, 1942, soon after the United States entered World War II he was commissioned in the United States Naval Reserve, and called to active duty in the office of the inspector of naval aircraft, United Aircraft Corp., East Hartford, Conn. In January 1943 he was transferred to Kansas City, Mo., as inspector of naval aircraft. His title was changed in November 1943 to Bureau of Aeronautics representative, and as such he remained in Kansas City until the Japanese surrender in September 1945.

Reporting to the United States Naval Personnel Separation Center, United States Naval Air Station, Jacksonville, Fla., he remained on duty there until June 1946. For 2 years thereafter, he served as Bureau of Aeronautics representative at Detroit, Mich.

Reported for duty in Bureau of Aeronautics, Washington, in June 1948.

SAGER, CAPT. J. P., USN

Promoted to rank of captain July 1, 1955.

BAR, St. Louis, since November 1954.

Previously stationed in Philadelphia where he was assistant director of naval air experiment station.

Native of Petosky, Mich.

Bachelor of science and master of science in engineering from University of Michigan.

Commissioned ensign USNR in 1935.

Both a naval aviator and engineer.

Other tours of duty:

Engineering officer, Coco Solo, C. Z.

Overhaul and repair officer, Naval Reserve Air Base, Grosse Isle.

Officer in charge, flight test, Aeronautical Engine Laboratory, Naval Air Facility, Philadelphia.

Staff officer, ComAir 7th Fleet.

Head of Instrumentation and Accessories Branch, BuAer.

Production officer, naval air station, Alameda.

Director of Technical Division, BuAer, Bureau of Aeronautics, general representative, Central District.

BOLT, LT. COL. JOHN F., USMC

Entered service in November 1941 following 2 years at the University of Florida. As the result of night-school enrollment at the University of Maryland will receive bachelor of science degree from that institution in January 1956.

Completed officers' course in engineering at Marine Corps aviation technical schools.

A member of Col. "Pappy" Boyington's famed "Black Sheep" squadron during World War II, with which he flew 91 missions and destroyed 6 enemy aircraft in the Solomon Islands campaigns. For this he was awarded the Distinguished Flying Cross and Gold Star.

Served in Korea with Marine Fighter Squadron 115, flying 92 missions in fighter bombers specializing in ground-air support tasks.

Flew 42 missions with the Air Force's 39th Fighter Interceptor Squadron flying F–86 airplanes.

Destroyed 6 MIG–15 fighters during his Korean service for which he was awarded the Navy Cross and Oak Leaf Cluster to the Distinguished Flying Cross.

WOODHULL, COMDR. ROGER BLAKE

Appointed to United States Naval Academy in 1933 on competitive appointment, graduating with distinction in 1937 with bachelor of science degree.

He served aboard battleships and cruisers until February 1940 when he reported to flight training at Pensacola. While with VS–5 on U. S. S. *Yorktown*, participated in attacks on Marshall-Gilbert Island January 1942, Lea and Salamaua in New Guinea in March 1941 and the battle of the Coral Sea during May 1942. Awarded Navy Cross for Coral Sea engagements and in participating in sinking of Jap carrier. Participated in invasion and occupation of Guadalcanal while serving in U. S. S. *Enterprise*.

In 1943 selected for postgraduate training in aeronautical engineering. Attended United States Naval Post Graduate School and California Institute of Technology, graduating in 1945 with master of science and professional degrees in aeronautical engineering.

Assigned to duty in Bureau of Aeronautics 1945–49, executive assistant of overhaul repair department, Naval Air Station, Pensacola, 1949–52. In Bureau of Aeronautics since 1952 to present, where he is now Assistant Director of the Powerplant Division.

Awarded Navy Cross, Presidential unit citation with combat star, American defense with star, American theater, Asiatic Pacific theater with six combat stars, and Victory Medal.

LT. COMDR. N. J. SMITH, USN

Lieutenant Commander Smith joined the Navy in 1942 and took flight training at Pensacola, Fla. From flight training and operational training he joined the Fighter Squadron 13 which deployed to the Pacific in latter part of 1943. After a tour of 8 months participating in combat strikes against the Japanese, during which time he became an ace accredited with knocking down 8 Japanese aircraft and sinking a Jap tanker, he returned to the United States in 1944 for night fighter training. After 5 months of this training he returned to the Pacific as an all-weather pilot in a night fighter unit, returning to the United States at the end of the war.

From the fall of 1945 to August 1950 he was engaged in night all-weather operations and training on various carriers in the Atlantic and Mediterranean, during which time he was officer-in-charge of 12 different night fighter units. In December 1950 he took a night fighter unit to Korea for a period of 8 months aboard the U. S. S. *Valley Forge* and the U. S. S. *Philippine Sea*.

In 1952 he was ordered to the Naval Air Test Center, Patuxent River, Md. and completed a 6-month course in test-pilot training. Upon graduating from this school he was assigned to the Carrier Suitability Section of the Flight Test Division at the Naval Air Test Center, where he tested experimental aircraft until 6 months ago. He was project test pilot of the new steam catapult trials, flying every type of jet aircraft off the aircraft carrier during these trials.

Lieutenant Commander Smith is currently aboard the U. S. S. *Tarawa* (CVA–40).

Decorations and awards: Distinguished Flying Cross with one star, Air Medal with three stars, Commendation Ribbon with Combat V, Presidential Unit Citation, Navy Unit Citation, Pacific Theater Ribbon with four bronze stars, Philippine Liberation Ribbon with one star, United Nations Ribbon with one star, American Theater Ribbon, Victory Medal, Occupation Ribbon.

Mr. FOGLER. In fairness to a great many of the people who are not here who were concerned in the decisions which were made in years past we should keep this in mind, had a relatively few factors been different, there would have been flying today one of the best if not the best jet engines in any airframe and one of the best airframes in the air.

I am saying that only to keep in mind that most of the people who were concerned with these earlier decisions aren't here today.

Mr. HOLIFIELD. That is right.

Mr. FOGLER. And because there were a great many factors of real success in this J–40 engine. They finally failed to do the things which they were intended to do.

Mr. HOLIFIELD. It is the purpose of this committee to give everyone a fair chance to place the facts upon the record, because there have been all kinds of stories carried in the press and in magazines in regard to this matter.

It was referred to us by the chairman of the full committee for the purpose of spreading on the record in an official way a fair story on this matter.

This is our purpose in holding these hearings.

If there is no further question at this time, the committee will adjourn and we will meet at 10 o'clock in the morning for further hearings.

(Whereupon at 5 p. m. the hearing was adjourned, to reconvene at 10 a. m. October 25, 1955.)

NAVY JET AIRCRAFT PROCUREMENT PROGRAM

TUESDAY, OCTOBER 25, 1955

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON MILITARY OPERATIONS
OF THE COMMITTEE ON GOVERNMENT OPERATIONS,
Washington, D. C.

The subcommittee met, pursuant to adjournment, at 10:05 a. m., in room 1310, New House Office Building, Hon. Chet Holifield (chairman of the subcommittee) presiding.

Present: Representatives Holifield, Garmatz, Griffiths, Hoffman, Riehlman, and Lipscomb.

Also present: Michael P. Balwan, staff director; Herbert Roback, director of investigations; James F. Eckhart, assistant counsel; Earl J. Morgan, investigator; and Robert J. McElroy, investigator.

Mr. HOLIFIELD. The subcommittee will come to order.

Mr. Crickenberger, will you please take the stand.

Do you swear that the testimony you are about to give to this committee will be the truth, the whole truth, and nothing but the truth, so help you God?

Mr. CRICKENBERGER. I do.

Mr. HOLIFIELD. Thank you.

Be seated. Will you please give your name and your position to the reporter.

TESTIMONY OF W. M. CRICKENBERGER, TERMINATION SECTION, CONTRACTS DIVISION, MATERIAL SERVICES, BUREAU OF AERONAUTICS, UNITED STATES NAVY.

Mr. CRICKENBERGER. My name is W. M. Crickenberger.

I am employed in the Contracts Division, Bureau of Aeronautics.

Mr. HOLIFIELD. Mr. Crickenberger, I am sorry we could not hear you up here at the committee table. Will you speak loud enough for us to hear?

Mr. CRICKENBERGER. I am employed in the Contracts Division of the Bureau of Aeronautics.

Mr. HOLIFIELD. You are in charge of that Division, as civilian head of it, are you?

Mr. CRICKENBERGER. No, sir; I am in charge of the Termination Section, Mr. Chairman.

Mr. HOLIFIELD. Termination Section.

Mr. CRICKENBERGER. Of the Contracts Division.

Mr. HOLIFIELD. Mr. Roback has some questions for you.

Mr. ROBACK. What were the total termination costs in the J–40 and F3H programs? Do you have those in the breakdown by specific contracts?

Mr. CRICKENBERGER. Yes, sir; I think I do. On Westinghouse J–40's approximately $10 million.

Mr. RIEHLMAN. I couldn't hear him, Mr. Chairman.

Mr. HOLIFIELD. Will you please speak up a little louder, Mr. Crickenberger?

Mr. CRICKENBERGER. The termination claims of the J–40 program at Westinghouse will approximate $10 million. They have not been settled. That is an estimated figure.

Mr. ROBACK. Do you have a breakdown by specific contracts?

Mr. CRICKENBERGER. By specific contracts?

Mr. ROBACK. Does this include the contracts in the J–40 for the Ford Co., also?

Mr. CRICKENBERGER. No, sir; that does not include the Ford.

Mr. ROBACK. What are the total termination costs of the J–40 and F3H as it relates to the J–40.

Mr. CRICKENBERGER. The Westinghouse engines will approximate $10 million. The Ford engines will approximate $15 million. The Goodyear termination on the F3H was, I believe, finally settled at $302,000.

The Temco settlement is partially settled at some $6.5 million. We have a few subs. It will not exceed $9 million. The estimate of the McDonnell termination claims is $4 million.

Mr. ROBACK. How did the termination with regard to the Westinghouse contracts originate? Was there a time when Westinghouse requested the Navy to terminate?

Mr. CRICKENBERGER. Sir, I wouldn't be familiar with that. I think our Production Division who start the terminations would be far better qualified that I would.

Mr. ROBACK. What is your understanding, Mr. Crickenberger?

Mr. CRICKENBERGER. On the termination aspect?

Mr. ROBACK. Of the origin of the termination.

Mr. CRICKENBERGER. Sir, there were a number of terminations. I think it would perhaps be better to take them contract by contract. On the two Westinghouse I believe there is a total of 13.

Mr. ROBACK. Did Westinghouse request the Navy to make a termination by convenience, that is at the convenience of the Government?

Mr. CRICKENBERGER. Not to my knowledge, no, sir; that is a decision made by the Chief of the Bureau of Aeronautics.

Mr. ROBACK. Are you familiar with the circumstances by which the termination was made as a matter of convenience to the Government?

Mr. CRICKENBERGER. On these contracts in general?

Mr. ROBACK. On the J–40 contracts.

Mr. CRICKENBERGER. The decision to terminate, and the type of terminations are made by the Chief of the Bureau.

Mr. ROBACK. Who was the Chief of the Bureau at the time the first termination was considered?

Mr. CRICKENBERGER. The first termination was on 10385 in June 1950. Quantity 14 J–40–WE–6's. In June 1950, sir, I don't——

Mr. ROBACK. What is the first big termination in the J–40?

Mr. CRICKENBERGER. It was the fourth termination under 52048, September 3, 1953. That was the total of 718.

Mr. ROBACK. Who was the Chief of the Bureau at that date?

Mr. CRICKENBERGER. In September 1953? I am not sure.

Mr. HOLIFIELD. Admiral Russell?

Admiral RUSSELL. I believe it was Admiral Pride, who currently commands the 7th Fleet out in the western Pacific. Is this 1953 or 1950?

Mr. CRICKENBERGER. This is September in 1953.

Admiral RUSSELL. 1950, I believe Admiral Pride was the Chief of the Bureau, and in 1953 Admiral Combs, who is currently here on duty as Vice Chief of Naval Operations for Air.

Mr. CRICKENBERGER. That was for 718 engines. There were 3 previous terminations on that contract, the first for 139, the second for 31, the third one was for 2. All three of those first terminations have been settled at no cost. This fourth one we just mentioned for 718 engines, the estimated cost will be somewhere around $5.5 million.

Mr. ROBACK. All these terminations were for the convenience of the Government, even though there had been failure to deliver on the contracts; is that right?

Mr. CRICKENBERGER. You mean timewise?

Mr. ROBACK. Well, failure to deliver in any respect, either timewise or according to the contract requirements.

Mr. CRICKENBERGER. It was a conclusion of the Bureau that they had timewise on schedule these terminations.

Mr. ROBACK. What was on schedule?

Mr. CRICKENBERGER. Well, the one we are discussing now is 718 engines.

Mr. ROBACK. You mean the deliveries were on schedule, or the terminations on schedule?

Mr. CRICKENBERGER. The deliveries were on schedule. We terminated them in September 1953. The schedule that I have here, they were on time.

Mr. ROBACK. What were the considerations of the Bureau which decided that the terminations should be for the convenience of the Government?

Mr. CRICKENBERGER. Then again I think we should take these individual terminations. The majority of them, sir——

Mr. ROBACK. Let's take the first substantial termination in September 1953.

Mr. CRICKENBERGER. Those are on J40–24's and J40–26's. It is my understanding that when we terminated, they met the requirements of the specifications.

Mr. ROBACK. For which, J40–24?

Mr. CRICKENBERGER. 24's and 26's.

Mr. ROBACK. They met what requirements?

Mr. CRICKENBERGER. The requirements of the specifications. Now, as to the details of that, I am not a technical man. I would prefer calling on some of the powerplant people.

Mr. HOLIFIELD. In addition to engineering specifications, which I assume you are testifying that they met, were there also performance criteria which they were supposed to meet?

Mr. ROBACK. Mr. Chairman, is our understanding correct that there never were any models of that engine produced, of the 24 or 26?

Mr. CRICKENBERGER. That, sir, I don't know at this time.

Mr. ROBACK. How do you know they met the specifications?

Mr. CRICKENBERGER. Sir, as to the details of the specifications on these –24's and –26's, I am not familiar. When we terminate an item like that, we confer with our technical people and our counsel.

Mr. HOLIFIELD. Now, let's be sure that we know what we are doing here, if the counsel will permit me. You are speaking of contract termination 52048 with the Ford Motor Co., are you not?

Mr. CRICKENBERGER. Yes, sir.

Mr. HOLIFIELD. Have there been any deliveries of engines on this contract?

Mr. CRICKENBERGER. Sir, my record does not disclose that. I am in the termination end of it, not the production end.

Mr. HOLIFIELD. That's all right, if you don't have the information, just say so.

Mr. CRICKENBERGER. Yes, sir.

Mr. HOLIFIELD. We are not going to press you on something you don't have. Who has the information? Admiral Russell?

Admiral RUSSELL. Admiral Beardsley, my Chief of Procurement, is familiar with this situation.

Mr. HOLIFIELD. Admiral Beardsley, will you answer the question of the Chair? Have there been any deliveries of engines on this contract?

Admiral BEARDSLEY. You are speaking of the Ford contract?

Mr. HOLIFIELD. Yes, sir; 52–048.

Admiral BEARDSLEY. No, sir. As I told you yesterday, they had just got ready, they were tooling up, buying material, buying components, and getting ready to produce. They had not delivered an engine at that time.

Mr. CRICKENBERGER. 52048 is the Westinghouse contract.

Mr. HOLIFIELD. What is it?

Mr. CRICKENBERGER. The contract we are talking about is 52048 with Westinghouse. That was the letter of intent, Admiral.

Mr. MORGAN. Mr. Chairman, the Ford contract is 51–966.

Mr. HOLIFIELD. Westinghouse is 52048?

Mr. CRICKENBERGER. Yes, sir.

Mr. HOLIFIELD. Was the first large-term contract 718 motors, and was that Westinghouse or was it Ford?

Mr. CRICKENBERGER. Let's see, I think that was Ford. I believe the final termination on Ford was in April 1953.

Mr. HOLIFIELD. Now, we have got this straightened out, at least in the Chair's mind, that we are talking about the Ford contract 51–966, canceled April 1953, and a total of 718 engines; is that right?

Mr. CRICKENBERGER. Yes, sir; I think that's correct.

Mr. HOLIFIELD. You testified that this was terminated, and that they had met specifications.

Mr. CRICKENBERGER. Sir, none on the Ford. None had been delivered. That was a letter of intent, and we have no default clause under letter of intent. It would have been impossible under any circumstances to have terminated that contract for default.

Mr. HOLIFIELD. So your Ford termination, which you estimate to cost around $15 million, is based on a letter of intent, and is not based upon production.

Mr. CRICKENBERGER. Well, we were looking forward to a production contract.

Mr. HOLIFIELD. That is true, but no production had taken place.

Mr. CRICKENBERGER. No, sir.

Mr. HOLIFIELD. All right, proceed.

Mr. ROBACK. What is the time lag ordinarily between a letter of intent and a definitive contract?

Admiral BEARDSLEY. I might answer that, Mr. Chairman. Normally——

Mr. HOLIFIELD. Admiral, I don't believe we have had the pleasure of having you sworn in, yet.

Do you swear that the evidence you are about to give will be the truth, the whole truth, and nothing but the truth, so help you God?

Admiral BEARDSLEY. I do, sir.

Normally a letter of intent is intended to start a contractor for really only the first 4 to 6 months, at which time you attempt to convert that to a firm contract. That is a normal procedure.

During the Korean situation, in an effort to procure and deliver material to the fleets as early as we could, many of the contracts were let by using the letter of intent as an instrument of starting production.

As has been mentioned, we do not have the right to terminate for default under a letter of intent as we use it in the Bureau of Aeronautics. During the period following Korea, during Korea, and following Korea, the Bureau had so much business, and it issued so many letters of intent that we were not able to firm up the specifications and convert those as rapidly as we and others wanted us to do it, very frankly. In the period after 1953, the Bureau made an effort to increase its manpower in this area, and reduce letters of intent to definitive contracts at earlier date.

Mr. ROBACK. Are you ascribing to a shortage of manpower the fact that the contract 52048 with Westinghouse ran for more than 2 years as the letter of intent?

Admiral BEARDSLEY. I cannot tell you the exact reason, but I know in the overall the Bureau was unable to handle the volume of negotiations, both the letting of contracts and the conversions, to firm contracts.

Mr. ROBACK. But the existence of the contract in the form of a letter of intent precluded you from making any termination by default.

Admiral BEARDSLEY. Yes, sir.

Mr. ROBACK. That is your testimony?

Admiral BEARDSLEY. Yes, sir.

Mr. BALWAN. Is there any possibility that you might have, or ever considered terminating by default, but were prevented by virtue of the fact that you had a letter-of-intent relationship?

Admiral BEARDSLEY. Speaking of this particular contract, I do not believe that is true, sir, because when we start cutting these quantities back, it is because we are cutting back our aircraft.

We had taken the J40 engine out of the F4D. We no longer had the requirements there. We had taken the engine out of the A3D, and we no longer had the requirements there.

So, in reality, while the contractor had not developed and was not delivering us the engine we wanted, we had no need for the engines. We did not need them for our aircraft. And so we were forced, we felt, to terminate for the convenience of the Government.

Now, I might mention here that it is my understanding that on the Westinghouse terminations for the J40 engine, it appears that the total termination costs will be in the order of somewhere around 5 percent of the value of all engines terminated. In other words, we will save some 95 percent, we believe, now of the total cost of those engines.

Mr. BALWAN. Mr. Crickenberger made the statement that it was agreed to terminate at the convenience of the Government at no cost, or relatively little cost. Is that my understanding, Mr. Crickenberger?

Mr. CRICKENBERGER. I stated on 52048 the first three terminations that were issued under that letter of intent have been settled at no cost to the Government.

Mr. ROBACK. Were representations made by Westinghouse that they would prefer to have a settlement in that fashion, or was that one of the conditions of your arrangement by having a letter of intent, rather than a definitive contract? Were representations made to the Navy by Westinghouse that it would be more suitable to have a termination at the convenience of the Government than by default?

Admiral BEARDSLEY. This particular contract was a letter of intent at that time, and we did not have the right to terminate for default, so I don't imagine that Westinghouse ever came in and suggested a different type of termination.

The type of termination is made in the first instance by the Bureau of Aeronautics. If the contractor does not agree with that type of termination, he can appeal, it is my understanding. But the Bureau of Aeronautics makes its determination. It takes the responsibility for the type of determination.

Mr. ROBACK. Were there any contracts with Westinghouse under which you could have defaulted, which you could have terminated by default?

Admiral BEARDSLEY. It is my understanding that at any time a contractor fails to meet a delivery date on a firm contract, and not a letter of intent, but on a firm contract, any date he fails to make deliveries, you can terminate for default.

But our problem is if you terminate for default, you never get the item you want for the aircraft. Now, if you look back through the record of aircraft development in this country, and particularly since Korea and that period there, you will find there were tremendous slippages. There was a great deal of notoriety and publicity given to the slippages of aircraft production.

And if every time an airframe manufacturer, or an engine manufacturer or a component manufacturer had failed to make a delivery

date on a firm contract, we in the military services had exercised our default rights, the fleet and the services would have gotten only a very small trickle.

This is one of the dichotomies of our situation. If you cut them off for default when they fail to meet it, you never get it. That is the problem.

Mr. HOLIFIELD. Now, Admiral, isn't it true that there are other possibilities of terminating by default, and that would be on the ground of performance, failure to perform, or failure to meet the specifications as well as delivery date?

Admiral BEARDSLEY. You are correct, sir.

Mr. HOLIFIELD. Were there any grounds for the Government terminating any contracts with Westinghouse on the grounds of nonperformance?

Admiral BEARDSLEY. We do not believe so, sir.

Mr. HOLIFIELD. In other words, the performance of the J–40 engines by Westinghouse was not a matter of firm requirement in your contract with them?

Admiral BEARDSLEY. I believe it was a firm requirement, sir.

Mr. HOLIFIELD. I am speaking now in particular of the thrust development.

Admiral BEARDSLEY. I understand, sir.

I might enlarge on that a little bit, sir. I think I can answer your question.

Mr. HOLIFIELD. All right.

Admiral BEARDSLEY. It is my understanding that in buying engines, we buy to a specification which cites thrust under various conditions, and specific fuel consumptions, and other types of specification. It is quite a volume. In our contract it says we want an engine delivered to a certain specification. That is what you are talking about.

Mr. HOLIFIELD. That's right.

Admiral BEARDSLEY. And if we do not meet that specification, we have the right of not taking the item. Or if we want to negotiate, say, a different specification as development comes along, we have that right, also. But we do have the right to default for that. Do I make myself clear?

Mr. HOLIFIELD. Yes. Are you referring to research and development contracts?

Admiral BEARDSLEY. Essentially production. I think that is what you are talking about today.

Now, we also, in our contract for engines, require that this engine pass a military department specification, a mil spec, which is a joint Air Force-Navy specification to go through certain tests.

You have heard the term 150-hour test. This is a series of cycles of going up to full thrust and back, under various conditions. And the Air Force and the Navy require all our engine manufacturers to go through this same test.

This is the test that the development engine has to go through, not every single production engine. But each production engine has to meet those same specifications, and has to go through actually about 8 or 10 hours of running, instead of 150 hours of running. We do have the right on any production contract for an engine to default if he doesn't make deliveries.

We also have the right under our contracts, if we terminate for the convenience of the Government, to take certain other contractual action to protect Government interests. And it is our intention in this particular instance to do what we can to protect the Government interests, even though we have terminated for the convenience of the Government.

Mr. HOLIFIELD. Your intentions are to protect the Government by utilizing these rejected engines and airframes for training purposes, I believe Admiral Russell testified to yesterday, for further testings of different kinds, and for training purposes.

Admiral BEARDSLEY. That is true, but I am not referring to that, Mr. Chairman. I am referring to contractual payments, payments of money against the contract.

This final termination has not been decided. The Navy is studying its contracts, and the situation as far as the engine is concerned, and will attempt to take what we believe we should to protect the Government contractually. This has nothing to do with the use of the engines. There is a board of review which will review our actions, or, in case the contractor appeals.

Mr. HOLIFIELD. But when you do put yourself in the position of terminating for the convenience of the Government, you foreclose certain negotiations which you could have on a default basis, is that not true?

Admiral BEARDSLEY. You are right, sir, essentially, as I understand it.

Mr. HOLIFIELD. In other words, when you terminate at the convenience of the Government, this means that the manufacturer will receive payment for the production of the engine, where, if you should terminate under the default clause, on performance or delivery, why. you are in an advantageous position, then, as far as payment is concerned.

Admiral BEARDSLEY. You are correct, sir. As far as these particular Westinghouse contracts are concerned, we terminated certain engines which were undelivered for the convenience of the Government.

As I mentioned, we believe it will cost us some 5 percent of the total estimated cost of those engines.

What I was referring to was our negotiations on the costs of the 107 engines we received. That price, we are still talking about that area, what we will actually pay the contractor for the 107 engines that we did receive, that were not terminated.

Mr. ROBACK. How many production contracts were let to Westinghouse in the forms of letters of intent that were never finalized?

Admiral BEARDSLEY. To the best of my knowledge this contract 52048 is the only one with Westinghouse that had relation to J–40 engines. That is the only one, sir, as far as I know.

Mr. ROBACK. All these other contracts were terminated at the convenience of the Government?

Admiral BEARDSLEY. Yes.

Mr. ROBACK. What consideration was given to the procedures which you are required to follow in termination under the Armed Services Procurement Regulations? What kind of consideration was given to those requirements?

Admiral BEARDSLEY. As far as I know, the Bureau followed the procedures as laid down to us policywise and directivewise in making our terminations.

Mr. ROBACK. Did you skip over the default sections in making those determinations? They are all made by other than default.

Admiral BEARDSLEY. That's correct, sir. I am certain the decision was made by the Bureau at the time of termination that the Bureau could not support a termination for default.

Gentlemen, now realize that the J40–22 engine that the Westinghouse people were attempting, were delivering at that time, was meeting its thrust specifications, was meeting the specific fuel specified in the contract, and the article he was delivering to us was meeting the specifications that have been set up, and it was going through his house tests and being accepted. And so we were not in the position to say that he was not delivering to us at that time the article that was specified.

Mr. BALWAN. This is –22 you are talking about?

Admiral BEARDSLEY. Yes, sir; the –22. So when we look at only the –22 terminations, the company was delivering it.

Now he was delivering it at a later date than the contract probably actually called for. But unfortunately it is true that in these production contracts we frequently have to change the actual delivery schedules, and we in the Bureau negotiate these with the contractors, and due to the paperwork quite frequently you can have a printed schedule in the contract and you actually have an agreed-to schedule between yourselves and the manufacturer. That is just the unfortunate situation, but it exists, as I pointed out before.

So we felt that while he probably was not delivering, in fact he was not delivering actually to the contract, we had negotiated a new schedule with him. He was delivering an item which met its specifications, and that therefore we could not make a termination for default.

Mr. ROBACK. Had anybody in the Bureau ever proposed that a termination by default be made?

Admiral BEARDSLEY. I don't know, sir.

Mr. BALWAN. How about it with respect to the –10, –12, –24, and –26 contracts? Those were engines that were never delivered. In this case they did not produce.

In this case we can see how they did produce the –22 and you had cutbacks and you didn't want them in the large quantities which you had ordered. What are the contract numbers on those?

Mr. MORGAN. Most of those were on 52–048.

Mr. BALWAN. The same contract?

Mr. MORGAN. The same contract.

Mr. BALWAN. Mr. Chairman, could we have the witnesses recap their testimony in terms of the higher rated engines in terms of thrust, since they were speaking mostly to the –22?

Admiral BEARDSLEY. I would like to read these off—individual termination notices and type of termination.

Termination notice No. 1 which was in 1952 was for the –12 engine, which I believe was for the A3D application.

Mr. BALWAN. How many engines?

Admiral BEARDSLEY. 139 engines, canceled value of about $13 million at no cost to the Government.

Mr. BALWAN. Not one engine was delivered?

Admiral BEARDSLEY. No, sir, and there was no cost to the Government on it.

Mr. BALWAN. What is the basic difference as far as the contractor is concerned in his loss as to whether he is canceled at convenience or default in terms of the Government?

I mean if the Government is involved in this thing here, isn't that about the same thing as default when you are not calling that? He is just not charging anything. It is a loss to him. He is not charging though.

Admiral BEARDSLEY. I don't know, sir, how much the contractor had actually paid out against this contract at that particular time. But the assumption I must make is that he probably had paid out a great deal because these are engines which we wanted delivered in the future.

It had not really been developed yet, and I doubt if the contractor had spent a lot of money at that time. See, this is that letter of intent. This is on that letter of intent which we could not do it for default anyhow.

Mr. BALWAN. Even if you had wanted to?

Admiral BEARDSLEY. That's right, sir, but we terminated at no cost to the Government.

Mr. BALWAN. The point I am making is that if you had terminated by default or under the default clause, it probably would have been a situation where the Government paid him nothing.

Admiral BEARDSLEY. Under termination in a default clause, Mr. Chairman, I might make this point clear.

It is my understanding when we terminate actually for default, that if we still need the hardware, we have the right to go to another manufacturer and place an order with another manufacturer and have him produce it, and if it costs more than the price that the original contractor had bid it for we can go back to the original contractor and make him pay the difference. I could be wrong, but that is my understanding of a default.

Mr. BALWAN. Mr. Chairman, I think as a matter of public policy the Navy probably was doing something that was in their best interests since you got the same thing as you would have under default, and yet you still have the contractor working with you.

He agrees to terminate at no cost to the Government because the Navy still wants engines or wants other materials from them, so that we have an agreement probably between the Navy Department and Westinghouse, "We will bear the cost of this at no cost to the Government, provided we aren't blackballed by a default termination."

Admiral BEARDSLEY. I might make a statement I think it is the Bureau of Aeronautics policy, if not the Navy Department policy, if you have the alternative between defaulting the contract and a no-cost settlement, which costs the taxpayer no money, the Bureau is apt to take the no-cost settlement unless we want to go somewhere else and buy the item. And we have done that in some cases.

Mr. HOLIFIELD. As I understand it, your letter of intent is ordinarily applied to a research and development contract where, in a sense, the Navy and the manufacturer are in partnership trying to develop an article. Am I right in that?

Admiral BEARDSLEY. We can use a letter of intent both for research but also for the large production contracts. In the research con-

tracts I believe instead of using a fixed price type contract, we are more apt to use a cost-plus-a-fixed-fee type of contract, because he doesn't know actually how much it is going to cost him to develop it. In the production contracts we tend to use the fixed price with a determinable target.

Mr. HOLIFIELD. So your letter of intent can be used either for research and development or as a preliminary arrangement before going into a production contract.

Admiral BEARDSLEY. You are correct, sir.

Mr. ROBACK. What are the differences in termination procedures as between large and small contracts?

Admiral BEARDSLEY. The Bureau of Aeronautics has divided its business down into various program areas for various types of our program like research, airframes, and we have designated officers who are responsible for the administration, the planning, and the execution of programs.

Now, a program officer can authorize the procurement, I believe, up to $10,000, approve it. He can also approve a termination up to $10,000.

Now, between $10,000 and $300,000 the program officer plus one of the Assistant Chiefs of the Bureau must approve either procurement or termination actions. Any contract for any amount of money over $300,000 and the termination has to also have the approval of the Deputy or the Chief of the Bureau.

Mr. BALWAN. Is it the contract value that has to be over $300,000 or the termination settlement?

Admiral BEARDSLEY. Either one, sir. A new contract for anything over $300,000 has to be approved by the Deputy or Chief, and a termination, which is for an amount of over $300,000, has to also be approved by the same people.

Mr. BALWAN. But a $5 million contract in which there is a $200,000 termination settlement would not have to go to the Chief of the Bureau?

Admiral BEARDSLEY. I believe it does, sir. I think it does, sir.

Mr. HOLIFIELD. One question I would like to ask you. Do you treat these small contractors with the same courtesy or deference that you do the large contractors?

Admiral BEARDSLEY. I believe we do, sir. As a practical matter I think the Bureau takes pride in the amount of business it tries to do with small contractors. We are encouraged and we try to do business with small contractors. I think we try to treat them all fairly, sir, as we see our job.

Mr. HOLIFIELD. We have had some experience I think, different Members of Congress, with small contractors attempting to do a job and being held to the strict letter of the contract, and no such favorable attention has been given some within my own personal knowledge, where there was a new item being manufactured and where they may have failed on some little point on it, they were either penalized or, in some instances, completely put out of business.

But it seems to me that when you get to these big operators there is always a way found to give them a little bit of favorable attention. I don't know whether it is because of their size, their ability to produce, which you need in future contracts or not. But in my period in Congress I have noticed a difference in the treatment of small con-

tractors and these large contractors, and I believe every member of this committee may have had the same experience.

Admiral BEARDSLEY. It is my understanding, Mr. Chairman, that every contractor who is found in default or who does not agree with the settlement under a termination has the right to appeal to an armed services board of contract review, and I am advised that the Bureau has defaulted contracts.

I am advised that in some cases the contractor involved has agreed to the default and not gone forward and requested further review. I am advised in some cases they have gone forward and sometimes we have not been supported. We have lost the case. But we try to be fair with all of them, sir, I can assure you.

Mr. FOGLER. Mr. Chairman, may I make a statement, please?

Mr. HOLIFIELD. Yes, sir.

Mr. FOGLER. In connection with the treatment of large and small contractors, I believe I devoted at least 25 percent of my time to the problems of small contractors in doing business with the Navy.

I am personally convinced that all contractors by the various bureaus of the Navy are treated alike. This is true, however, in that connection, that in connection with Government contracts it is almost imperative that every contractor have good legal advice, and in many, many cases the problem of having that advice on the part of a small contractor is a very difficult one, and frequently the small contractor is unaware of his own rights.

Now we are making a very special effort to furnish to small contractors all the information which they should have in order to adequately deal with what are frequently so complicated contracts, and I believe that I can assure you that, if your statement is true, there is no intent on the part of the contracting officers in the various bureaus to treat different people differently depending on whether or not they are owners or representatives of small contractors or large contractors.

It is true that the large contractors have on their staffs always very competent legal advice and counsel. Frequently the small contractors do not have this.

Frequently they do not know how to make their claims if there is a controversy between the Navy contracting officer and their own representatives. And frequently they do not have the complete engineering skill which they should have for the product which they are manufacturing.

That also applies to big contractors. But we do welcome every instance about which we learn where it may appear or may be true that any contractor is not receiving the complete consideration that he should receive from any one of the bureaus from the Navy in total.

And in my office I am extremely anxious to help any contractor who may not be receiving every right and every consideration which he has under any agreement or any contract with the Government.

Mr. HOLIFIELD. I am glad to have that assurance, and I will refer some cases to you.

Mr. FOGLER. I will be very glad to have them, Mr. Chairman.

Mr. HOLIFIELD. Mrs. Griffiths.

Mrs. GRIFFITHS. I would like to understand, does the Chief of the Bureau or the Deputy Chief have to approve every contract that the Navy has above $300,000?

Admiral BEARDSLEY. Yes, ma'am. That is the Bureau of Aeronautics policy. I don't know what it is in other bureaus, ma'am.

Mrs. GRIFFITHS. And do they sign letters of intent?

Admiral BEARDSLEY. I don't know whether they personally sign the letter of intent. They have approved papers which lead up to the letter of intent.

Mrs. GRIFFITHS. At the time of these contracts, were there other contracts under consideration by the Navy? At the time of these contracts of which we are speaking, they had other contracts; didn't they?

Admiral BEARDSLEY. Westinghouse?

Mrs. GRIFFITHS. No; the Navy had other contracts with other contractors.

Admiral BEARDSLEY. Oh, many; yes, ma'am.

Mrs. GRIFFITHS. Could you estimate the dollar value of those other contracts, of all other contracts at that time?

Admiral BEARDSLEY. It is just an estimate.

Mrs. GRIFFITHS. I realize that.

Admiral BEARDSLEY. We must be administering over $5 billion worth of contracts.

Mrs. GRIFFITHS. Five billion dollars?

Admiral BEARDSLEY. I imagine it is; I don't know.

Mrs. GRIFFITHS. And there have been many other contractors?

Admiral BEARDSLEY. Yes, ma'am; many.

Mrs. GRIFFITHS. Would they have been situated all over the United States?

Admiral BEARDSLEY. Yes, ma'am.

Mrs. GRIFFITHS. Would the Chief of the Bureau and Deputy Chief of the Bureau have had to consider also among their duties the requirements of the field? Would that be among their problems? Would they have been concerning themselves with the requirements of the Navy and would they have officers who are explaining those requirements?

Admiral BEARDSLEY. Yes, ma'am; and I might enlarge on that a little bit.

The Bureau of Aeronautics is given the basic requirements for the general types of aircrafts and the numbers to be procured from the Office, Chief of Naval Operations. We are given in some areas very detailed guidance and in other areas very broad guidance.

But the Chief of the Bureau is given his requirements as far as the number of aircraft he must buy and support and maintain. He is very busy doing many things besides signing contracts.

Mrs. GRIFFITHS. And he is talking to many people who are telling him how these items he purchases are acting in the field; isn't that right?

Admiral BEARDSLEY. He talks to many people. He has people in his own organization who keep track of this.

It would be physically impossible for him to keep track personally, but he has the organization of the Bureau to run this whole area we are talking about.

Mrs. GRIFFITHS. So that the amount of money we are talking about is about what percentage of the total contracts he has?

Admiral BEARDSLEY. A small percentage.

Mrs. GRIFFITHS. And workwise it is a very small percent of the work that he has to do?

Admiral BEARDSLEY. He has probably had greater than the average share of problems.

Mrs. GRIFFITHS. I think what this country needs is somebody to look at the 200 million, really the smaller part of this.

Mr. ROBACK. Mr. Chairman, may I request at this time that the Navy search their records on these contracts and determine if anyone in the Bureau ever had made a proposal that the contracts for the J–40 and related programs—that is, related to the J–40—be terminated by default: also whether Westinghouse or Ford ever had made any representations to the Bureau that these contracts be terminated in one way rather than in another.

Mr. HOLIFIELD. Will you supply that?

Admiral BEARDSLEY. Yes, sir, we will.

(The material referred to is as follows:)

The following questions were asked by counsel of the Military Operations Subcommittee of Admiral Beardsley to—

(1) Search the records of contracts of the J–40, etc., that someone in the Bureau of Aeronautics had proposed that the contract be terminated for default, and.

(2) Whether Westinghouse Electric Corp. or Ford had made representation to the Bureau of Aeronautics that the contract be terminated in one way or another.

A search has been made of the J–40 contract and records to determine what proposals, if any, were made to terminate J–40 engines for default, with the following answer to the question:

(1) The record discloses that a default termination was considered on the second partial termination under contract NOa(s) 10385 involving a quantity of 6 model J–40–WE–12. Contracting officer's letter dated June 19, 1952, serial 87302, notified Westinghouse that it had failed to make deliveries as required and had so failed to make progress in the prosecution of the work as to endanger performance, and a period of 10 days was granted to cure the default. Westinghouse agreed to waive the cost it had incurred and since no replacement contract was contemplated, a termination for convenience was issued and a no-cost settlement agreement was executed.

(2) On July 27, 1955, the Bureau of Aeronautics advised Westinghouse of its intention to terminate 78 J–40–WE–22 engines (ref BuAer msg 271855Z). In a reply dated August 4, 1955, Westinghouse recommended revision to the planned procedure for termination of 40 of the 78 engines under consideration (ref Westinghouse letter WK 2338L of August 4, 1955). This revision proposed that the Navy accept all engines that had reached green run rather than stopping all work and making it necessary to accept only partially assembled material for scrap. Justification for this proposal was that substantial savings could be realized at a later date if the engines were ultimately required for use. The Bureau of Aeronautics replied by letter on August 25, 1955, to this proposal in the affirmative but specified that no changes in the method of termination of the remaining 38 engines would be acceptable.

Admiral BEARDSLEY. I might add that in contract 10385 with Westinghouse, termination notice No. 5, we gave them a 10-day notice of defaulting, told them that we were going to default in 10 days, and they came in and agreed to a no-cost termination for that item of the contract.

It is not a large amount of money, but we did use under this contract our default rights, and he came in and agreed to a no cost. I think it is significant that of about 12 terminations in these 2 contracts, 8 of them are at no cost to the Government.

We are not trying to throw the money away actually, honestly.

We are trying to do the job as we see it from day to day faced with our problems. That is all we are really trying to do, gentlemen.

Mr. HOLIFIELD. Of course, the eight agreements on no cost were undoubtedly based on the fact that there had been very little expenditures on those.

Admiral BEARDSLEY. Absolutely. You are probably right, sir.

Mr. HOLIFIELD. So it doesn't necessarily mean that there is any benevolence involved on the part of the manufacturer in bringing in a no-cost contract where he hadn't spent any money.

Admiral BEARDSLEY. It did show this one thing, Mr. Chairman: That through that year of crisis, you might call it, 1952 and 1953, that we were watching this almost from day to day, and as soon as it became apparent we didn't need these things, we tried to stop it and save as much money as we could.

Mr. MORGAN. Mr. Chairman, I think Admiral Beardsley meant to say termination No. 2 there, did you not? The date of that was July 18, 1952, just to clear the record.

Admiral BEARDSLEY. That is correct.

Mr. HOLIFIELD. Proceed, Mr. Roback.

Mr. ROBACK. Mr. Chairman, at this time may I request that Captain Dietrich be consulted with respect to a statement in the classified presentation to the staff for the purposes of declassification and inclusion in the record?

Mr. HOLIFIELD. Is Captain Dietrich in the the room?

Captain DIETRICH. Present, sir.

Mr. HOLIFIELD. Will a member of the staff take the particular document to him.

Mr. ROBACK. What is the Navy policy under its procurement regulations with respect to progress payments?

Admiral BEARDSLEY. I am not an expert on that area, but as I understand it, it has varied between 75 and about 85 percent of his costs up to a certain point. In other words, of his incurred costs. We pay him I think up to 75 or 85 percent of it. What it is today I don't know, but it is in that area, sir.

Mr. ROBACK. Do the regulations prescribe differences for large and small contract amounts?

Admiral BEARDSLEY. I don't know the answer to that, sir.

Mr. ROBACK. Does Admiral Dixon know the answer to that?

Admiral BEARDSLEY. I don't believe there is any difference between small and large. I don't believe.

Mr. HOLIFIELD. Admiral Dixon, will you please let the counsel ask you a question? Will you repeat the question?

Mr. ROBACK. Can you or anyone else representing the Navy advise the subcommittee what the regulations prescribed with respect to progress payments as between large and small contracts? Are they the same for all contracts?

Admiral DIXON. May I get some advice from the staff, sir?

I am advised, sir, that the progress payment policy is the same for all contracts.

Mr. ROBACK. Under what circumstances are progress payments required, let us say, at 90 percent and others at 75 percent?

Admiral DIXON. I would prefer to have Mr. Sass, the legal officer of the bureau, answer that question, sir.

Mr. HOLIFIELD. Mr. Sass, do you swear the testimony you are about to give this committee will be the truth, the whole truth, and nothing but the truth, so help you God?

Mr. SASS. I do.

Mr. HOLIFIELD. Will you please answer the counsel's question. Your name and position, please.

Mr. SASS. Frederick Sass, counsel for the Bureau of Aeronautics. Will you repeat that question, please?

Mr. ROBACK. What do the regulations prescribe with respect to progress payment? We are talking about aircraft payments now.

Mr. SASS. Generally speaking, there is a 75 percent limitation on the amount of progress payments that can be made at the present time, 75 percent of cost.

There is also a limitation on the total payments that may be made to a contractor under a price redetermination type contract.

Most of our airplane contracts are price redetermination type, which is in effect until a firm fixed price not subject to redetermination is effected. Of 105 percent of the total costs, which the contractor has incurred, you see we make payment, we make progress payments up to 75 percent as we go along, based upon the costs which he has incurred.

He submits an invoice which shows costs of 100 and we pay 75. Then he completes an article under the contract and delivers that and bills for the contract price. That contract price is subject to redetermination.

He is paid the contract price, part of it in cash, the rest a reduction in his progress payments account. But that sometimes results in the contractor having received near the end of his contract more than 105 percent of his costs and more than the redetermined price of the units after we have redetermined.

Mr. ROBACK. Does that result on occasion or frequently in the contractor receiving large amounts of money which he can use before having to give it back to the Government?

Mr. SASS. The purpose of the regulation, 105 percent regulation, was to prevent the contractors having in their possession large overpayments which they subsequently would have to repay to the Government.

Mr. ROBACK. Were any progress payments under the J–40 contracts made at 90 percent?

Mr. SASS. That I don't know without referring to a specific contract and the progress payment clause in that specific contract.

Mr. ROBACK. What was the situation with the Ford contract?

Mr. SASS. The Ford contract was a letter of intent, and without referring to the letter of intent, I can't tell you what the progress payments were under that item.

Mr. ROBACK. Is there anyone here who has a copy of the letter of intent?

Mr. SASS. I think we have a copy here.

The letter of intent for contract NOA–51–966, the Ford Motor Co., dated March 30, 1951, contains a provision:

> Progress payments will be made as the work progresses, but not more frequently than once every 2 weeks upon the presentation of invoices approved by the cognizant naval inspector showing the costs incurred by the contractor and chargeable to this letter of intent in accordance with part II of section 15 entitled "Contract Cost Principles" of the Armed Services Procurement Regulation of 1948. Such progress payments shall be paid to the extent of 75 percent of the amount of such invoices. However, the aggregate amount of such payments shall not exceed $11,645,625.

Mr. ROBACK. What amendments were made to progress payments?

Mr. SASS. Pardon me?

Mr. ROBACK. What amendments were made to the provision for progress payments?

Mr. SASS. Amendment No. 1, the letter of intent for Contract NOA–51–966, dated January 5, 1952 amends the contract to

1. Change the percent of progress payments from 75 to 95 percent.

Mr. ROBACK. What was the situation which led to that change?

Mr. SASS. That I am not familiar with.

Mr. ROBACK. Is anyone here able to answer that question?

Mr. HOLIFIELD. So apparently your formula of 75 percent progress payments is not a firm formula. On occasions you advance it to 95 percent.

Mr. SASS. I believe, Mr. Chairman, that this was done prior to the firm 75 percent limitation which we, insofar as I know, are following at the present time. There was a time some years ago when we did grant more than 75 percent.

Mr. HOLIFIELD. But you don't do that any more. You have a firm ceiling of 75 percent on progress payments at this time?

Mr. SASS. There is a directive which limits progress payments to 75 percent. Whether we have obtained deviation or permission in certain exceptional cases to deviate from the requirements of that directive, I do not know.

Mr. RIEHLMAN. Mr. Chairman, it might be well to know when that directive came into being.

Mr. HOLIFIELD. Yes, when was the directive issued that precluded you from going above 75 percent, if that is the case?

Mr. SASS. I don't know that I have a copy of that.

Mr. HOLIFIELD. Will you furnish that?

Admiral RUSSELL. We will look it up, sir.

(The directive referred to is as follows:)

September 15, 1955
No. 4105.7

DEPARTMENT OF DEFENSE DIRECTIVE

Subject: Payments on incentive-type and price-revision-type contracts.

I. PURPOSE

It is the purpose of this directive to eliminate the need for substantial refunds by contractors after retroactive final determination of prices on incentive-type and price-revision-type contracts and to facilitate timely adjustment of provisional billing prices.

II. POLICY

To accomplish the purpose of this directive, effective on or before October 1, 1955, all contracts of the incentive type and price-revision type shall provide that the aggregate total payments on such contracts shall not at any time exceed 105 percent of the total costs incurred as of any given date, prior to the negotiation of a firm and finalized price.

III. ACTION

(*a*) All new contracts of the incentive or price-revision type, all amendments to existing contracts of these types providing for additional new procurement, and all definitive contracts of the incentive or price-revision type replacing or superseding letter contracts entered into subsequent to October 1, 1955, shall contain the following provisions:

"Notwithstanding any other provision of this contract, until final price revision has been made, the total payments under this contract shall not at

any time exceed 105 percent of the contractor's total costs incurred in the performance hereof as certified by the contractor to be reasonable in amount and properly allocable to this contract."

In connection with amendments providing for new procurement, the above provision shall be made applicable to the entire contract.

(*b*) Where the contracting officer has discretion to control payments through withholding provisions under an existing contract, the contract shall be administered hereafter so that the total aggregate payments will not exceed 105 percent of incurred costs under the contract. Accordingly, each such contractor shall be required, as a condition precedent to any payment under such a contract on and after December 1, 1955, to certify with each invoice that the amount claimed thereon together with the aggregate total of all previous payments invoiced and not disallowed under the contaract does not exceed 105 percent of the total incurred costs reasonably and properly allocable to such contract.

(*c*) In the case of outstanding contracts of the incentive-type or price-revision type, where payments cannot be limited within a reasonable period of time to 105 percent of the total incurred costs reasonably and properly allocable to a contract through giving effect to (*a*) or (*b*) above, the contracting officer shall take prompt action to obtain by mutual agreement an amendment of such contracts incorporating the above clause.

IV. EFFECTIVE DATE

This directive is effective upon issuance. It will be included in the procedures, instructions, or directives of each military department so as to be operative throughout all procuring activities not later than October 1, 1955.

REUBEN B. ROBERTSEN, Jr.,
Deputy Secretary of Defense.

Mr. ROBACK. Admiral Beardsley, when did the Bureau take under consideration the improvement of termination procedures and policy? When did they, last?

Admiral BEARDSLEY. I can't answer that, sir. I don't know if they have ever taken that as a special study to improve our termination procedures.

I do know that since Admiral Russell has come to the Bureau and 3 or 4 of us have recently reported in to top positions in the Bureau, we are reexamining some of these policies. That is a matter of the last month or so.

Mr. HOLIFIELD. Mr. Morgan will at this time read some material into the record. Identify it, please.

Mr. MORGAN. Mr. Chairman, this is from a presentation that has a classified status. This presentation was made by Captain Dietrich to the staff during the course of our investigation. I have cleared with Captain Dietrich and Admiral Russell the contents of this paragraph which I am going to read.

Mr. HOLIFIELD. Is it a complete paragraph or have there been deletions?

Mr. MORGAN. There have been some deletions that we will have to take up in executive session, but I think I can make my point by merely reading what I have here:

June 21, 1954, it was recommended internally within the Bureau that the F3H–1 be limited to one service tour with no overhaul. Spare parts support was limited with the intent to cannibalize in order to support the program. No plans were made to back-fit the J–71 because that engine was in difficulty. Initial production of the J–71 would be needed for the F3H–2 program. This internal memorandum was the abandonment of all hopes to make the F3H–1 a first-line fleet service aircraft. CNO did not permit a fleet indoctrination test program to be conducted on the F3H–1 in August of 1954—

as a result of this internal memorandum, I am told.

CNO further stated all the F3H–1–N aircraft would be used in a trainer capacity at one location on each coast.

The question I would like to ask here, Mr. Chairman, is what was the status under contract 10385, what was the status of deliveries on the WE–22 engine and WE–22A. By that, Admiral Beardsley, I mean how many should have been delivered and how many were actually delivered. The point I am trying to get at is whether or not a termination could have been made by default for failure to deliver at that point.

Admiral BEARDSLEY. The information I have is that as of June 1954 we had 19 engines delivered of the WE–22 configuration.

Mr. MORGAN. How many were supposed to have been delivered, or is that getting into classified material?

Admiral BEARDSLEY. I can't give you the exact number that were supposed to have been delivered, sir. I don't have it.

Mr. MORGAN. If I may be permitted to quote from a document furnished by Westinghouse, according to my interpretation of this document, 50 WE–22A's should have been delivered. Actually there were 14 delivered at this time. The number 50 was the total under contract as amended.

This was stated to me to be the latest delivery schedule, which called for 50 to be completely delivered by July of 1954, and under the 22's, there had been no deliveries at this time, and the contract called for approximately 20. Again I state the question: Could there have been a termination by default for failure to deliver at this point?

Admiral BEARDSLEY. Since that was a letter and not a letter of intent, the engines that had not been delivered in accordance with a schedule that we had actually negotiated with Westinghouse, whatever that particular schedule was—it could have been this one—could have been terminated for default.

Again, sir, we come back to the situation where we needed engines to keep the flying program going for the F3H aircraft and to operate those planes. I might develop that a little bit, Mr. Chairman.

Mr. MORGAN. Mr. Chairman, right there I would like to interrupt the Admiral for just a moment. What was the status of the J–40 F3H combination in June of 1954? Was it on flying status or was it grounded?

Admiral BEARDSLEY. I don't know the answer to that, sir.

Mr. MORGAN. According to my information, Mr. Chairman, this airplane was grounded until June 30, 1954, as a result of an accident that occurred several months earlier. This accident was the preliminary evaluation test that was conducted by the Navy, and we have with us here today I believe the test pilot on that particular mission.

Mr. HOLIFIELD. What is his name?

Mr. MORGAN. Comdr. Nicholas Smith, I believe.

Mr. HOLIFIELD. Is Comdr. Nicholas Smith in the room?

Commander SMITH. Yes, sir.

Mr. MORGAN. Excuse me, Mr. Chairman. Before we get into that, I would like to continue the point I am trying to make here.

The plane was grounded in June of 1954, and by this statement that I have previously read, it appears to have been the abandonment of all hopes to make this a first-line airplane.

Deliveries were continued under contract, deliveries were allowed to be made and were accepted. The plane was flown later on and it was

after this time that the crashes occurred in which the four pilots were killed.

Mr. HOLIFIELD. At this time I will ask Commander Smith to come forward to the witness table, if you gentlemen will please excuse yourselves for just a few moments. We would like to question Commander Smith.

Commander Smith, will you swear that the testimony you are about to give this committee will be the truth, the whole truth, and nothing but the truth, so help you God?

Commander SMITH. I do, sir.

Mr. HOLIFIELD. Thank you, sir, and be seated.

Commander Smith, the subcommittee, some of the members of the subcommittee are aware of the fine record that you have in the service of your country, and at this time we want to express our admiration for the work that you have done both in wartime and in peacetime to help to develop the equipment which is necessary for the defense of this country.

TESTIMONY OF LT. COMDR. NICHOLAS J. SMITH, NAVY TEST PILOT, PERFORMING PRELIMINARY EVALUATION ON F3H PLANES AT ST. LOUIS, MO., MARCH 1954

Commander SMITH. Thank you, sir.

Mr. HOLIFIELD. Will you please at this time give your full name to the reporter, your rank, your term of enlistment and your duties?

Commander SMITH. Lt. Comdr. Nicholas J. Smith, III, United States Navy, 14 years in the service, term indefinite.

Mr. HOLIFIELD. You have had 14 years of service. Apparently you are striking for the full term, Commander.

Commander SMITH. Yes, sir.

Mr. HOLIFIELD. Commander Smith, one of the concerns of this committee, and I know of your superiors, has been the loss of four pilots. I understand 3 of them have been civilian pilots and 1 has been a Navy aviator.

We felt that it would be good for the committee to know, and the American people to know from the lips of a man who has flown in these planes and has had the necessity of bailing out, what is your opinion of the J–40 series of planes which you have tested.

Will you also tell, if you do know, how many hours you have flown these series of planes and how many times you have bailed out, if any, and in your own words your evaluation of these planes.

Commander SMITH. Yes, sir; I will. There is only one fact, that if I stop at a point here or there, it will be because I am getting into the classified end of the thing.

Mr. HOLIFIELD. We expressly request that you do not speak of any MACH numbers or other technical information, which would invade the zone of security.

Commander SMITH. Yes, sir. Well, after the Korean conflict I went through the test-pilot training at Patuxent River and test-pilot work, took over the XF3H project which had the J–40 engine in it, in August of 1953; worked with the company pilots, and with our pilots at Patuxent River on the airplane. We were very fond of many factors of it as far as pilot opinion goes.

It has and had lots of possibilities. It also has now, I might add, the same possibilities.

I went through the different stages of the J–40 engine from the ones that we had in experimental models to the ones that were in the F3H–1. The first flight in the airplane we had engine trouble with the J–40 engine.

As far as the airframe itself goes, I have never had any doubt or been bothered whatsoever about the plane being able to stand up with any of the other airplanes that have to go into combat. We felt the airplane had a tremendous possibility. We lost nothing as far as this money loss goes. In experience with the X model we learned a great deal out of it which you can't learn in a test cell.

We felt at that time while we were still in the Korean war that we had something that you could use very nicely as an interceptor, the pilots felt that, I might say, as the top-rate interceptor. The J–40 engine continued progressing as it was doing at the time.

We also agree with the top people that we need a night all-weather purpose airplane, with the capabilities that it would have, and thought it would be an awfully fine idea. As far as the grounding of the engine goes, the airplane, we have run into that type of problem with practically every airplane that I know of in the jet field at one time or another for one thing or another. Perhaps only a very short time, a day or two, until a fix can be put in the engine of the airplane.

Mr. HOLIFIELD. Will you please tell us what your personal experience was in flying some of these planes, how many hours that you have flown these planes with these engines.

Commander SMITH. Yes, sir. I have approximately 800 hours of jet time, 3,000 hours of prop-type time. I have more night landings than any man in the Navy aboard a carrier, and I am in the top 10 or 12, I think, on the total landings aboard carriers.

I have taken, with the exception of the very latest here, I have flown every one of the jets off and on the ship in different tests on those planes. It is a very good comparison. We try in our work not only to test one, but to test all of them so that we have an idea of what plane may be better suited for certain jobs than another.

Mr. HOLIFIELD. Now, I believe you gave the figure of 600 hours jet flying.

Commander SMITH. No, sir. I said 700. That is approximate.

Mr. HOLIFIELD. And that is all types of jets?

Commander SMITH. Yes, sir.

Mr. HOLIFIELD. Do you have the number of hours that you have flown the J40?

Commander SMITH. Yes. I flew it 47 hours and 15 minutes.

Mr. HOLIFIELD. And did you have to bail out at any time because of difficulties?

Commander SMITH. Yes, sir; I had to get out of a production model of 3H–1, March 18, 1954, at St. Louis.

Mr. HOLIFIELD. We are happy to know by your presence here today that you made a successful parachute landing.

Commander SMITH. Everything worked in that respect.

Mr. HOLIFIELD. Did you understand that this plane was to be an all-purpose plane?

Commander SMITH. Yes, sir. With the increased fuel that they had put in the airplane and a few other things it was definite that it was slated for that particular job.

Mr. HOLIFIELD. Will you describe how you test a plane, what the method is of testing a plane, and what the method of recording those tests is, either by a followup observer or by mechanical devices, so that we might know.

Commander SMITH. Yes, sir. Due to the limitations of time in trying to get the airplanes in the fleet as quickly as possible we cram everything that we can into a flight, test flight of the particular airplane we are testing. We sit down beforehand for several days and go over everything that we would like to do, every minute of the time we might be on a flight.

There can be different types of test hops. One might be stability and control of the airplane, one might be the performance of the airplane, one flight might be the carrier suitability of the airplane. But whatever part of the testing that we intend to do for the particular flight is planned beforehand.

We go through the phases of, say, the climb of the airplane, climbing to altitude, we go through different levels at a rather fast pace. So we try to have a tape recorder on a special channel, radio channel, hooked into the base operations. And as we go, instead of taking the time to try to write something down in pencil which we are unable to read at a later time, we continually talk over the radio, and it is taken down by the tape recorder.

After the flight is over we can come down and run the tape through slowly and get all the information.

Mr. HOLIFIELD. In other words, you talk into a recorder and get from your panel and from the behavior of your plane everything that you see or believe that is happening?

Commander SMITH. Yes, sir; that is correct.

Mr. HOLIFIELD. And do you have an observer following you at a fairly close distance who also talks with you and records?

Commander SMITH. Yes, sir. We have what is termed a chase pilot in a plane, particularly when flying a new aircraft we have a chase pilot in a plane that has been in production for some time to go along and help us visually in things that you are unable to see, such as—we have had cases of a door coming lose from the airplane, a door on the airplane of one type or another coming loose, which they can immediately tell you, or any malfunctioning that you are unable to see that is external, plus to advise the home base if anything might happen to you.

Mr. HOLIFIELD. I think at this time it would be of interest to the record to show a little more accurately what happens in one of these test flights between the chase pilot and the operator of the test plane. We have here a transcript, or a part of a transcript, of what took place—the conversation which took place—between Chief Test Pilot R. C. Little, who followed Commander Smith in a test on the 18th of March in which he bailed out. This record has been censored by the Navy and important statistics have been deleted, and I will read it at this time because I think this is an important thing for the American people to know—the service that men like Commander Smith are rendering to the Nation. I will read it in alternate ques-

tions and comments, starting with Mr. Little and Commander Smith, and these are employees of the McDonnell Aircraft Corp.

(The matter referred to is as follows:)

McDONNELL AIRCRAFT CORP., ST. LOUIS 3, MO.

MAC 231C (REV. 6-6-49)
Revised April 2, 1954

Page 3.0
Report 3501
Model F3H

RADIO TRANSCRIPT AND SEQUENCE OF EVENTS OF ACCIDENT INVOLVING THE LOSS OF F3H-1N, BuNo. 133490, PILOTED BY LT. COMDR. N. J. SMITH, ON MARCH 18, 1954, CHASE PLANE F2H-1, BuNo. 122530, PILOTED BY MAC CHIEF TEST PILOT R. C. LITTLE

3. SEQUENCE OF EVENTS

F3H-1N airplane, Bureau No. 133940, took off for flight No. 490-26 at 10:46 a. m. central standard time, on March 18, 1954. The purpose of the flight was to perform Navy evaluation tests of the F3H-1N airplane. The test airplane was accompanied by an F2H-1 chase airplane, Bureau No. 122530. The takeoff and climb to 40,000 feet altitude were normal. A radio transcription of the entire flight was obtained. The transcription, starting at 40,000 feet altitude, is presented below, along with other pertinent information.

Time	Mach number and altitude	Radio transcription and other information
10:50:18	(*) 22,000 feet	490: (*) at 22.
:23		530: Roger.
:28	(*) at 30,000	490: (*) at 30.
:29		530: Roger.
:46		490: The nozzle position.
10:51:03		530: You say it's doing O. K.
:18	About 30,000	490: Everything is operating.
:58	(*)	490: Still O. K., no oscillation as yet.
10:52:03		530: Roger.
:38		490: This wing fuel goes down.
:43		530: The windshield?
:48		490: I said the wing fuel goes down like a mad elk in this configuration. The rate of climb is slowing up a little bit now at (*) at 38. It's probably dropped down to about (*) hundred feet per minute as well as I can tell offhand.
10:53:08		530: Yes, Nick, that's the case, you would probably make it to (*) whereas if you wait long enough the burner will probably squeeze down (garbled).
:18	(*)	490: Yeah, it's still pretty steady as far as the nozzle—the temperature's right. Got (*) probably pull it back a little bit and go on up—just hold your fingers—everything's setting quietly here now.
:37		530: Yes; it's O. K., take it on up if you want to.
:46	(*)	490: The nozzle's fluctuating a little bit now at (*) it feels like it's approaching a stall—slightly—it's not too bad yet though.
10:54:00		530: The burner generally gets rough along with nozzle fluctuation.
:06		490: It actually feels as if the burners are cutting out and in slightly.
:13		530: Yeah, that's normal at that altitude.
:37	(*)	490: It stays every once and a while in though and it keeps jumping on up. The nozzle's down to about 4.9 now—temperature still normal at 660°—so same percentage. I've gotten to (*) and I'm at (*) now.
		530: Roger.
:52		490: I'm west of St. Louis, Janet, about 20 miles.
10:55:08		490: I'm going to try—my nozzle position is coming back to normal a little more—think I'll hold it here a minute and see if I can get a little higher.
		530: Roger.
10:56:07		490: What's the highest "g" you've pulled at (*) that altitude, Bob?
:12		530: We've just barely gotten to (*) the highest "g" pulled was at (*).
		490: Roger, well, I just got (*) it didn't feel too badly on this thing, of course, it's an afterburner but the airplane took it.
		530: Roger, what Mach number?
:36		490: At (*) when I started (*) slowed down to (*), but I got the (*) out of it. I suppose if I had kept pulling around, I got about (*) I'd go down more.
		530: Roger.
:51		490: Who's this up here off to my left—that's not you emitting black smoke, is it?
		530: Yeah, I'm off to your left.

See footnotes at end of table.

Time	Mach number and altitude	Radio transcription and other information
10:57:13		490: Doesn't look like a con-trail; it looks more black but I suppose it is.
:20		MAC radio: 490 from MAC radio—over.
		490: Go ahead.
:22		MAC radio (Wadleigh): We're just wondering if you're checked out on coming out of burning at altitude, Nick, remember to pull wel aft of military when you come out.
:33		490: Roger—I will—as a matter of fact I think I'm going to have to do it in about 10 seconds. I'd like to make one more turn though and give it a try. I'm trying to get back up to (*) without going below (*) and make a turn to the right and see if I can pick up (*) "g's" again.
10:58:08	(*)	490: I'll try at (*) and (*) Mach and see what I can do, I'm burning too much fuel to keep at it.
:15		530: Roger, Nick. At (*) and (*) Mach a small explosion was heard followed by a weak vibration in the engine section. Aircraft was immediately returned to level 1 "g" flight and the engine throttle lever was pulled out of afterburner and slowly retarded to approximately the normal rated power position. A brief reduction in contrail intensity but without any discontinuity was observed by the chase pilot. The engine r. p. m. started dropping immediately and the airplane was put in a dive attitude immediately.[1]
:15	(*)	490: I made it all right; I made (*) Mach (g), but I got a compressor stall in the back. I'm out of burning and I've got it well back.
:48		530: Roger.
:53		490: As a matter of fact—
10:59:07	(*) (estimated)	490: I don't know what shape I'm in here at the moment but I'm down to 20 percent r. p. m., and I think I've lost pressurization, as a matter of fact, 'cause I'm finding it hard to talk.
:22	(*) (estimated)	530: Yeah, you may have flamed out, Nick. I'm right behind you and staying up with you. You better drop down to 30,000; I can see fire in your tailpipe though. Chase pilot reported seeing abnormal bright orange flame flow which solidly filled the tailpipe.[1]
:36	(*) (estimated)	490: Well, my pressures are normal—at the moment here I've got 120 on one—everything else is fairly normal except my r. p. m. is down to 18 percent and my temperature is 340 and I get no response on the throttle at the moment. The 120 referred to was engine oil pressure. The indicator was probably inoperative at this time, however, due to loss in aircraft power.[1]
11:00:04	30,000 (estimated)	530: Roger, I'm right beside you here, I can see fire out your tail pipe, Nick, in fact, it looks fairly hot there—plenty of fire, are you back on the throttle to idle? Flame extended aft of the engine exit about 2 feet as reported by chase pilot with louver above engine exit being red hot. Air starts were attempted by the pilot. The normal and emergency fuel pumps were selected with the emergency pump warning light coming on upon selection of the emergency pump.[1]
:20	27,500 (estimated)	490: Say again?
:22		530: Pull the throttle back to idle. Throttle was in idle position and nozzle indication showed open nozzle. Nozzle position indicator is probably unreliable due to loss of aircraft power. Chase pilot reported nozzle as being at least partly open.[1]
:28	26,400 (estimated)	490: I'm out of control; my ailerons are working but the stabilizer isn't; (*).
:36		530: What's your hydraulic pressure, Nick? Turn on your silver cell pump—silver cell pump.
:39	25,000	490: I've got the silver cells on now; I'm still not getting any response on the stick, though—25,000—wonderful aileron control—I can't get the nose up—the rudders have gone for good (*).
11:01:00		530: Silver cell pump, Nick, the silver cell emergency pump handle.
:10	20,000 (estimated)	490: Garbled.
:13		530: Better get out, Nick, get out of it—get out. Tail's off—tail came off—MAC radio. He pitched up—the tail came off—2 pieces floating down. I hope he gets out of it. At .82 Mach the control stick went from slightly forward position to full aft overpowering pilot effort to restrain it. Airplane pitched violently, nose up, followed by violent yaw to left. Tail came off during pitchup. Airplane tumbled about all 3 axes. Pilot tried to get control by using opposite controls and dropping landing gear lever. Control forces disappeared.[1]
:33	16,000 (estimated)	530: The plane is just north of Alton floating down—the tail is coming down—1 piece—entire rest of fuselage is coming down. 10 miles north of Alton. At 18,000 feet the canopy was jettisoned by pulling right leg guard. The seat was not lowered. The seat was fired by pulling the face curtain. Pilot last remembers altitude unwinding at 15,000 feet.[1]

Time	Mach number and altitude	Radio transcription and other information
11:02:00	----------	530: Did you get all that, MAC radio?
:05	----------	MAC radio: He went down north of Alton. Bob can you give us any more?
:09	----------	530: 10 miles north of Alton—he went down—I don't see his parachute. He pitched-up and the airplane broke up.
:36	----------	530: I see his parachute—I see his parachute—he got out.
:42	----------	530: He's out in the parachute—straight up the highway north of Alton. Flames were visible from the aft section of the airplane and the engine exit and increasing in intensity as the plane fell. The tail section did not burn. No smoke was observed from the airplane at any time prior to impact.[1]
:52	----------	530: The main wreckage hit—it's on fire. The tail piece is still floating down.
11:03:13	----------	530: His parachute popped about 6,000 feet—about 7—7,000 feet.

*Deleted for security reasons.
[1] This information obtained during subsequent discussions with the pilots of the 2 aircraft.

MAC personnel and fire equipment departed immediately for the scene of the accident. The pilot of the airplane was picked up by a farmer and an ambulance was obtained. The pilot was taken to St. Joseph Hospital, Alton, Ill., for observation, and was later transferred to Deaconess Hospital, St. Louis, Mo., for 3 days.

Mr. HOLIFIELD. This was the first preliminary evaluation, I believe, of this engine, was it not?

Commander SMITH. Yes, the WE–22.

Mr. HOLIFIELD. We, the members of the committee, congratulate you, sir, on your bravery, and upon the service that you have rendered to your Nation.

Are there further questions of Commander Smith?

Mr. RIEHLMAN. I would like to ask the Commander one further question.

You have said in your previous statement that it is a normal procedure or occurrence that jet developed planes are grounded at some period in the experimental stage; is that correct?

Commander SMITH. Yes, sir.

Mr. RIEHLMAN. In your experience in the service have you ever known of any other jet plane that has been grounded and caused as much trouble as this model?

Commander SMITH. No, sir.

Mr. RIEHLMAN. Do you know of any plane that has caused the death of 4, 3 civilians and 1 military pilot, in the experimental stages?

Commander SMITH. I cannot be definite as to the exact number, but several others have had the same type of trouble.

Mr. RIEHLMAN. But with one type of plane or type of engine, sir?

Commander SMITH. I would rather not answer that without a complete check, sir.

Mr. RIEHLMAN. I don't want to press you, but I am asking you if you know from your best knowledge of any plane with the type of engine, a jet engine, that has caused as many failures, in your experience, and the loss of lives that this one particular plane has?

Commander SMITH. No, sir.

Mr. RIEHLMAN. That is all, Mr. Chairman.

Mr. HOLIFIELD. Mr. Hoffman.

Mr. HOFFMAN. Have you any information which would enable you to make an accurate comparison, that is, do you know of any other

jet planes which have been tested in equal number over an equal period of time?

Commander SMITH. That is why I preferred not to answer him at the time, sir. I don't have the exact figures on other planes. We have had trouble with other planes, though. I say "We," I mean the armed services, not particularly the Navy.

Mr. HOFFMAN. And you didn't answer because you didn't have information which would enable you to give an answer which would be helpful to us?

Commander SMITH. Yes, sir.

Mr. HOFFMAN. And the answer that you gave that you didn't know of any other plane where there had been as many accidents and as much trouble, does that give us, in your opinion, any information so that we can compare the performance of this engine or this plane with others? We are lacking that, aren't we?

Mr. RIEHLMAN. Mr. Chairman, I am very fond of the gentleman at my left, Mr. Hoffman. But I am not trying to develop anything but the facts and the truth, Mr. Hoffman. And I asked him an honest question, and he answered us, and he gave us the facts. Here is a man that has had more experience than you or I have had or ever will have in respect to jet planes. I am basing my decision and information with respect to what happened in this case on his good judgment, and he gave it to me as best he could.

I will accept it without any comments or help from anyone else.

Mr. HOFFMAN. Mr. Chairman, I just don't know the reason that lecture was directed to me. What is the idea of lecturing me about it?

Mr. RIEHLMAN. I don't think, Mr. Chairman, that the commander needs any help from this committee. The answers will stand on the record, as far as I am concerned, and I will be very happy with them. No one needs to help the commander, I don't think, in making his decisions and his evaluations on what happened in the test on this type of airplane.

Mr. HOLIFIELD. Any further questions?

Mr. HOFFMAN. I haven't finished mine.

Mr. HOLIFIELD. We will be glad to hear from you.

Mr. HOFFMAN. I am somewhat amazed at my colleague's statement, because I wasn't endeavoring to help the commander. I don't think he needs any help from me, and I have no knowledge whatever of planes.

But the question I asked you was whether you know of any other plane in connection with which there have been as many accidents and as much trouble and which has been grounded as long as this plane. Was that the way you understood it?

Commander SMITH. Yes, sir.

Mr. HOFFMAN. And what was your answer? I understood your answer to be that you didn't, which might give the impression that the Navy had had no trouble with any other plane to as great an extent, put it that way, as they had with this one. Then I also understood you to say that you had no way of making a comparison of the suitability or capability of action of this plane with any other. Is that right, or isn't it?

Commander SMITH. No, sir. I have flown the Air Force's aircraft and ours. I have a good comparison of what all types will do, not

only through flying them, but through the reports that every test pilot of the companies writes on every hop that he makes, every hop that an Air Force man makes, every hop that an NACA pilot makes. We all get the reports that pertain to us of any interest at all, other than perhaps a specific small problem that each might have. But the major problems, the aerodynamic problems, we get all the dope from each service, plus the flying of their planes at one time or another for comparison purposes, or for a test they might like for us to try and get our opinion on.

I said "No" because I did not know of any other plane—I haven't checked the records that much. We sort of feel when a man is killed that, well, goodby, we go into the reason why, but we don't start counting noses particularly.

Mr. HOFFMAN. Don't start what?

Commander SMITH. Counting noses to see who is still with us and who isn't.

Mr. HOFFMAN. The only purpose of my question, which came because of your answer that you knew of no other plane where they had as much trouble as they had with this one, was whether or not that answer was based upon comparison of the records of other planes, that is, the times other planes had been tested, the number of times, and the times they had been grounded, or the accidents. That was the only purpose of my question.

Mr. HOLIFIELD. I think we have pretty well established the purpose now.

Mr. HOFFMAN. He hasn't answered it.

Mr. HOLIFIELD. I understood that he had.

Mr. HOFFMAN. He hasn't.

Mr. HOLIFIELD. Very well.

Commander SMITH. The F3H is grounded for more engine trouble than any other planes that I have ever worked with.

Mr. HOFFMAN. That you have ever worked with?

Commander SMITH. Yes, sir.

Mr. HOFFMAN. Now, as to whether you have any other information on other planes which have been grounded.

Commander SMITH. I have worked with other planes which have been grounded. I had an airframe on the engine, not for the length of time this airplane has been grounded, with all of the J series, the F–9 series, the F–86 series, and they have been grounded, but not for the length of time this particular one has.

Mr. HOFFMAN. I think that is all I have. I will ask the same question of the others, if they have records.

Mr. HOLIFIELD. Mr. Lipscomb?

Mr. LIPSCOMB. No.

Mr. HOLIFIELD. Mrs. Griffiths?

Mrs. GRIFFITHS. Do you have an opportunity to make a recommendation after you have made these test flights, or do you just write down the flights? Do you draw your conclusion as to what the plane will do?

Commander SMITH. We do both, yes. Every flight we make, a report is written on it in great detail. We put the facts down on one side and pilot opinion on the other side. And we try to get enough opinions from enough pilots to get a concrete answer on whatever it

may be. We still can't sit on the ground and design an airplane and have it go as it is supposed to go.

Mrs. GRIFFITHS. And did you write your opinion on this plane?

Commander SMITH. Yes, madam, I did.

Mrs. GRIFFITHS. Is it fair to ask what your opinion is? Can you give that answer or not?

Commander SMITH. That if we could get the thrust that was promised it would be one of the best that the United States has, and probably the best, at that time, 1953–54.

Mrs. GRIFFITHS. Did you have anything to do with grounding it?

Commander SMITH. I was the cause of it.

Mrs. GRIFFITHS. I want to tell you how much I admire your ability. You certainly have rendered the Nation a real service.

Commander SMITH. Thank you.

Mr. HOLIFIELD. Mr. Garmatz.

Mr. GARMATZ. Just a word to congratulate the lieutenant commander on his fine work, and I hope he is going to be with us for many years to come. And if he comes back here to testify I hope we can call him Admiral Smith instead of lieutenant commander.

Commander SMITH. Thank you.

Mr. HOLIFIELD. I believe Mr. Eckhart has some questions of Commander Smith.

Mr. ECKHART. Commander Smith, are you familiar with the naval air test center at Patuxent, report on this plane of December 2, 1954?

Commander SMITH. I am sorry, I didn't hear you.

Mr. ECKHART. The Patuxent River Naval Air Station report, the test center report, of December 2, 1954, on the F3H–1N.

Commander SMITH. Yes, sir; I probably am. I do not have the report with me from the test center of that particular date.

Mr. ECKHART. Who collaborates in the preparation of one of these reports on the performance of an aircraft?

Commander SMITH. The pilots that are testing the airplane write the reports along with the engineers, civilian or Navy engineers, that are in each section of the testing division.

Mr. ECKHART. Does the report represent the consolidation of their opinions and views?

Commander SMITH. We have a project pilot or civilian pilot and an engineer, and the engineer goes along. The views that are written are written both from the standpoint of what the engineer might get out of his particular instruments, what he gets out of the photopanel and instrumentation in the airplane, and then the report is written, at which time it is reviewed by the heads of the division and the people that have been in the work for quite a while.

Mr. ECKHART. I would like to go over with you, Commander, a few of the conclusions that have been reached in connection with this aircraft. And it is not for the purpose of showing that the F3H–1 is not a satisfactory aircraft, because we know that the Navy has discontinued building it. But I would like to touch upon some of these to find out whether or not the F3H–1 has been improved to incorporate some of the deficiencies or eliminate weaknesses of the former aircraft.

Mr. HOLIFIELD. Is this classified?

Mr. ECKHART. I am going to ask Commander Smith if he can talk on some of these points that I think would possibly be unclassi-

fied—a lot of this material could be unclassified. And the way the questions will be asked, Commander Smith, if you feel that the response to them is in any way classified or borders on that area, it would be best to decline to answer them.

Mr. HOLIFIELD. Do you feel qualified, Commander Smith—my colleague wants to make you an admiral, but I would prefer for you to go through the regular channels and be a captain first—do you feel qualified to judge as to security matters, or would you prefer not to be questioned further?

Commander SMITH. I feel I am qualified. If I am not, I won't answer until I find out.

Mr. HOLIFIELD. I think you have pretty good judgment as to security matters.

Mr. ECKHART. Was any recommendation made by you with respect to whether or not this plane was capable of performing its mission as an all-purpose fighter?

Commander SMITH. Yes, sir; a recommendation was made.

Mr. ECKHART. Would that recommendation be classified?

Commander SMITH. Part of the recommendation would be; yes, sir.

Mr. ECKHART. Could you say whether or not it is acceptable or unacceptable?

Commander SMITH. You mean overall whether the airframe—are you divorcing either the frame or the engine, or——

Mr. ECKHART. I am talking about the aircraft itself, a combination of the powerplant and the aircraft.

Mr. HOLIFIELD. You may divide your answer if you wish, sir, between frame and engine.

Commander SMITH. And your question is whether it is acceptable or unacceptable?

Mr. ECKHART. Yes, sir.

Commander SMITH. Well, I would prefer not to answer that, sir, because it would be totally opinion on my part. And it depends on what you might use the airplane for. You are just making it a flat statement that it is acceptable or unacceptable.

Mr. ECKHART. For its mission as an all-purpose carrier-based fighter.

Commander SMITH. May I have consultation?

Mr. HOLIFIELD. Yes, sir.

Admiral Russell, may I ask you if such a question should be answered or not?

Admiral RUSSELL. I would prefer, sir, to really bring the thing out, and I would suggest that we can do it in some detail as to specifics in executive session. I have no objection to the pilot expressing an opinion here.

Mr. HOLIFIELD. I understand that. But we want to be fair to the pilot.

Admiral RUSSELL. I am not sure that just a simple statement like that can be answered, yes or no. I think he should really give the reasons, and those reasons should be brought out in an executive session.

Mr. HOLIFIELD. All right, I will direct counsel to withdraw that question.

We will relieve you of the necessity of making that decision. We will bail you out.

Commander SMITH. Thank you, sir.

Mr. ECKHART. This can be discussed in executive session, then?

Mr. HOLIFIELD. Yes; I suggest that we take up this line of questioning in executive session. We do not want to put the commander in a position where he may be in doubt as to his answers, and we can pursue this in executive session.

Are there any further questions?

Commander Smith, on behalf of the committee we wish to thank you, and in your person before us today, all those brave men in the service and in the civilian ranks who test these new types of aircraft.

You may be excused. Thank you.

Commander SMITH. Thank you, sir.

Mr. HOLIFIELD. Will Admiral Beardsley and Mr. Crickenberger take the stand?

Mr. Garmatz?

Mr. GARMATZ. Admiral, yesterday we went into the Goodyear contract and the date it was signed, and the termination, which was 15 months, and the cost, and also into Temco, which was 15 months also. Now, could you tell me when Ford was started and when it was terminated? We don't have the dates of the contract.

Admiral BEARDSLEY. March 30, 1951, was the date it was let. And it was terminated April 3, 1953.

Mr. GARMATZ. How about Westinghouse?

Admiral BEARDSLEY. The Westinghouse contract, 10–385, dated March 1, 1949. That is the first order, the first date of it. And then it had a series of seven different terminations, the last termination being the 27th of July 1955.

The other Westinghouse contract, which was the letter of intent, 52–048, was dated July 23, 1951. And the last termination on that was in September 1953.

Mr. GARMATZ. What I was trying to get at, Admiral, was the amount of money that was spent in the termination of contracts, and over what period of time. In the statement before you mentioned the fact that several contracts were terminated at no expense to the Government and to the taxpayer. How long were those contracts in existence, what period of time, the ones that you say were no cost to the Government? Was it 2 weeks, 2 months, or 2 years?

Admiral BEARDSLEY. I can't give you the exact date we placed each of those orders and when we terminated each quantity.

Mr. GARMATZ. I just wonder how much we get back, on Goodyear it was 15 months and $300,000; Temco 15 months and $9 million, and Ford approximately 25 months and $15 million. So the ones that they terminated, you said, at no cost or expense to the taxpayer, I am just wondering how long they ran, 2 weeks, 6 weeks, or how much they give us for nothing.

Admiral BEARDSLEY. They were much longer than 1 or 2 weeks, I am sure of that. Some of those must have been in existence for at least 1 or 2 years. I think the point is that in the case of Temco, to a lesser extent Goodyear, and also Ford, those were largely starting costs, setting up the organization, your overhead, getting up your inspection force, ordering materials and bidding tooling.

Ford and Goodyear didn't make anything to speak of at all, as I recall it. Temco got further along and actually was starting to cut

material and actually fabricate parts. I think the Temco Corp. was very aggressive. We were at that time, when they got started, under a lot of pressure to get this plane into the air and fly it. And our energies were being spent in helping them get material and get started.

At the time that the Ford contract was let the same situation existed, and I think that was the reason you had larger expenditure earlier in the contract in both those cases. The reason you saved money in the latter terminations in Westinghouse was that these were the engines at the tail end of the production line.

Now, bear in mind, it takes some 14 months to get a production line going. The contractor needs some 14 months to order his materials, and once his line is going and in production, he is over all his development problems. So these are out toward the tail end of the line. The ones we cut off first, he had probably not ordered much material. And that is the reason we were able to terminate all these engines for about 50 cents on the dollar.

Mr. GARMATZ. You talk about the $15 million that was given to Ford for their termination of contracts. Is it possible that some labor, material, time and things of that sort could have gone over into these contracts that were terminated at no expense to the Government? Do you follow my thought? I mean, where they charged, or it cost the Government, $15 million, is it possible that some of that time and material or experimental expenses could have gone into these contracts at supposedly no cost to the Government?

Admiral BEARDSLEY. Westinghouse was responsible for the development of the engine; Ford was really not doing any development. They were learning how to tool up and try to produce the parts as economically as they possibly could. I don't believe there was too much to be gained from the Ford experience which could go back and help Westinghouse, although I do know there were exchanges of information on how to make things economically between the two corporations.

Mr. GARMATZ. Using Westinghouse as an example instead of Ford, would it be the same thing?

Admiral BEARDSLEY. I don't quite understand.

Mr. GARMATZ. You said Ford produced no motors at all, and Westinghouse did, and some of those contracts were terminated, if I understood you correctly, at no cost to the Government.

Admiral BEARDSLEY. That is correct, sir.

Mr. GARMATZ. The point I am trying to get at, this $10 million that was spent on Westinghouse termination of contracts, some of that time and material and experience could have gone over into these contracts that were terminated without any cost to the Government.

Admiral BEARDSLEY. No, sir; those contracts for which they actually expended money, those are all audited. We don't take the contractor's statement that he spent so much money. We have cost auditors to audit it. We have Bureau of Aeronautics men who review those.

Mr. HOLIFIELD. Any further questions?

We may want to come back to some other matters later, but at this time we will excuse you gentlemen. Thanks for your testimony.

And at this time, Mr. Balwan, will you call the next witness to the stand?

Mr. BALWAN. Mr. Chairman, we want to proceed with the Bureau of Aeronautics representatives. We have 4 here with whom the staff has talked, and 2 others who are predecessors of them. We have Capt. A. M. Blamphin, Bureau of Aeronautics representative, Kansas City, Mo., in the room now.

Mr. HOLIFIELD. Captain Blamphin, will you please come forward and take the witness stand?

Mr. BALWAN. And Capt. C. H. S. Murphy, formerly the Bureau of Aeronautics representative at Kansas City, predecessor to Captain Blamphin.

Captain MURPHY. I regret, I was the Bureau of Aeronautics representative at St. Louis, not Kansas City.

Mr. HOLIFIELD. We will accept the correction.

Will you please come forward?

Mr. BALWAN. Captain Sager.

Captain SAGER. Here, sir.

Mr. BALWAN. Will you come forward?

And Captain Smith, formerly of Kansas City.

Mr. HOLIFIELD. Is there a Captain Smith present?

Captain SMITH. Present, sir.

Mr. HOLIFIELD. Will you identify yourselves?

TESTIMONY OF CAPT. CHARLES E. SMITH, HEAD, AERONAUTICS PROGRAM BRANCH, OFFICE OF NAVAL MATERIAL, NAVY DEPARTMENT; ACCOMPANIED BY CAPT. A. M. BLAMPHIN, BUREAU OF AERONAUTICS REPRESENTATIVE, WESTINGHOUSE, KANSAS CITY, MO.; CAPT. C. H. S. MURPHY, COMMANDING OFFICER AND DIRECTOR, SPECIAL DEVICES CENTER, FORT WASHINGTON, N. Y.; AND CAPT. J. PARKE SAGER, BUREAU OF AERONAUTICS REPRESENTATIVE, ST. LOUIS, MO.

Captain SMITH. I am Capt. Charles Smith, head of the Aeronautics Program Branch, Office of Naval Material, Navy Department, Washington.

Captain BLAMPHIN. Capt. A. M. Blamphin, Bureau of Aeronautics representative, Westinghouse, Kansas City.

Captain MURPHY. Capt. C. H. S. Murphy, Commanding Officer and Director, Special Devices Center, Port Washington, N. Y.

Captain SAGER. Capt. J. P. Sager, Bureau of Aeronautics representative, St. Louis.

Mr. BALWAN. Mr. Chairman, these gentlemen have acted, or are acting, as representatives of the Bureau of Aeronautics, both at the Westinghouse plant and at St. Louis. Our staff has talked with these people, and it would be very helpful to have them describe their duties in connection with the production of these engines at these plants.

Mr. HOLIFIELD. Mr. Eckhart.

Mr. ECKHART. I think that would be an excellent way to start.

Captain Blamphin, would you give us in a nutshell what the BAR duties are at the Kansas City Westinghouse plant?

Captain BLAMPHIN. The Bureau of Aeronautics representative at the Kansas City plant is, as the name implies, an extension of the

Bureau who handles certain matters of contract administration which can be handled better in the field than from Washington, and who exercises the Navy's control of the quality of the product to assure that it meets the specifications.

Mr. ECKHART. Now, by handling contract administration, does that include any recommendations on your part as to the progress that is being made under a contract?

Captain BLAMPHIN. Yes, sir. Periodic reports are made as to what has been delivered, and what has not been delivered, including expressions of opinion by the Bureau of Aeronautics representatives as to the prospects for further delivery.

Mr. ECKHART. Captain Blamphin, do you fill out these reports on Westinghouse's progress, and the delivery schedule, or actual deliveries in contrast to the delivery schedule called for in the contract?

Captain BLAMPHIN. I don't quite understand you.

Mr. ECKHART. Is a part of your reporting to the Bureau to signify whether or not the contractor is performing in accordance with his delivery schedule?

Captain BLAMPHIN. Yes, sir.

Mr. ECKHART. And what has been your experience with the contractor's schedules under some of these contracts?

Captain BLAMPHIN. Sir, having been at Westinghouse since July 15 of this year only, and inasmuch as there were no deliveries until the conclusion of the strike there the 19th of August, and since the contract was prior to that time, I am not in a position to comment on his performance under the J–40 contract.

Mr. ECKHART. Was the contract terminated prior to your being sent to Kansas City as the BAR representative?

Captain BLAMPHIN. No, sir. The planning started before I reported, but the last 38 engines were terminated on the 27th of July.

Mr. ECKHART. Did you make any recommendations with respect to termination during your tour of duty as BAR prior to the actual termination of the Westinghouse contract?

Captain BLAMPHIN. I haven't the detailed information with me, but there was a detail of termination which was handled while I was there. That was a proposal by the contractor to modify the termination which already had been effected on the 27th of July.

Mr. ECKHART. How did he propose to modify that termination?

Captain BLAMPHIN. We proposed—as I recall the proposal just purely from memory now, was to accept, not as terminated engines, but as contract engines, 9 in addition; or, in other words, to change the quantity terminated from 38 to 29 because those 9 were already assembled—in other words, the proposal was to take them as engines, the same as the other engines under the contract rather than as termination inventory. The other part of that proposal was to afford further expenditure of time and money in putting engines through final test, and to accept engines at the conclusion of a successful green run without subsequent tear-down examination, reassembly, and final test run. The proposal was accepted, and resulted in a saving to the Navy of—I just don't recall the amount.

Mr. ECKHART. Did I understand you to say that Westinghouse's proposal was that you accept nine more engines than you had originally contemplated accepting?

Captain BLAMPHIN. Yes, sir. You see, we will receive the engines either as deliveries under the contract, or as termination inventory. We will pay the cost for the engines, I think, the same under either plan.

Mr. ECKHART. Did the Navy have any use at the time for these additional 9 engines that you speak of?

Captain BLAMPHIN. No, sir; it would make no difference as to—well, excuse me, a correction. The Navy would take title to the engines sooner if they were accepted as part of the contract; that is true.

Mr. ECKHART. Would not additional labor be expended in completing these additional 9 engines that they were proposing the Navy accept?

Captain BLAMPHIN. No, sir; no.

Mr. ECKHART. How are they going to be completed?

Captain BLAMPHIN. They were completed, sir.

Mr. ECKHART. These were all completed.

Captain BLAMPHIN. Yes, sir; they were completely assembled.

Mr. ECKHART. Well, is the Navy intending to accept all but nine that had been completed? Is that the point you were originally making?

Captain BLAMPHIN. Well, as I recall the figures, there were 78 total in that lot of the contract, and 38 out of the 78 had previously been determined as a number which could be terminated at least cost to the Government.

Mr. ECKHART. And how many were actually assembled?

Captain BLAMPHIN. All except 38, and 11 remaining under the unterminating part of the contract. As of last week there were 11 engines yet to be accepted.

Mr. ECKHART. Well, I have lost 9 engines someplace here, Captain. You say that Westinghouse proposed to accept 29 rather than 38 that the Navy proposed?

Captain BLAMPHIN. Proposed to terminate 29 rather than the 38.

Mr. ECKHART. Actually, the Navy accepted how many, between this 28 and 29 and 38 figure?

Captain BLAMPHIN. We are terminating the 29 and the 9, or a total of 38, and accepting the rest of the engines under the contract. Does that clarify it?

Mr. ECKHART. I have lost 9 engines someplace here, Captain. Did the change in that proposal of Westinghouse to the Navy, or the counterproposal, result in any additional termination cost to the Government?

Captain BLAMPHIN. No, sir.

Mr. ECKHART. Now, are you authorized in your position as BAR to communicate directly with the engine contractor if you discover any discrepancies or if you have anything that you feel is important enough to bring to his attention?

Captain BLAMPHIN. That is my duty, sir.

Mr. ECKHART. Are all of these letters sent directly to the contractor or sent through the Bureau of Aeronautics to the contractor?

Captain BLAMPHIN. Do I understand your question to be communications from me as the BAR to the contractor?

Mr. ECKHART. Yes, sir.

Captain BLAMPHIN. They go directly to the contractor from the BAR.

Mr. ECKHART. They go from your office to the Westinghouse office?

Captain BLAMPHIN. Yes, sir.

Mr. ECKHART. Now, at any time did the BAR of Kansas City receive reports on the performance characteristics of the J–40 engines that were being tested after they had left the Westinghouse plant?

Captain BLAMPHIN. I believe that that will get into matters that transpired before the time I reported there. I would prefer to have someone else answer that.

Mr. BALWAN. Do you have your predecessor here?

Captain BLAMPHIN. Captain Smith is my predecessor.

Mr. ECKHART. Captain Smith, would you respond to that question?

Captain SMITH. What is the question, sir?

Mr. ECKHART. Whether or not you received any report on the performance characteristics of the J–40 engines that were being tested after they had left the Westinghouse plant.

Captain SMITH. No; we did not receive reports from McDonnell to the BAR at Kansas City. However, we did receive reports by telephone conversations and the like from the BAR at St. Louis to the BAR at Kansas City of the so-called discrepancies.

Mr. ECKHART. How frequently did the BAR at St. Louis correspond with your office with respect to engine difficulties in the J–40 engine while you were the BAR there? Was it infrequent, or was it often?

Captain SMITH. As I recall from memory, we didn't deliver an engine until sometime late in 1953. And I believe the engine was flown at the beginning of 1954. And from that period on I would say that we were in communication with each other weekly.

Mr. ECKHART. And how often did the discrepancies in the performance in the J–40 engine come to your attention?

Captain SMITH. We discussed them, but they were not brought officially to my attention by the way of defective apparatus report or anything of that kind.

Mr. ECKHART. Were they brought officially to the attention of the Westinghouse company?

Captain SMITH. Yes, sir; the Westinghouse engineers were at McDonnell at the time.

Mr. ECKHART. Did the Navy make available any of this information directly to Westinghouse?

Captain SMITH. I couldn't hear you, sir.

Mr. ECKHART. Did the Navy BAR make any of this information available directly to Westinghouse?

Captain SMITH. We discussed it with Westinghouse; yes, sir; in their engineering department.

Mr. ECKHART. Was there anything official exchanged between the two?

Captain SMITH. There could be, but my memory fails me on that; I don't know exactly.

Mr. ECKHART. Were you there at the time that any of the accidents occurred to the 3H–1 or the XF3H plane?

Captain SMITH. Yes, sir; I was there until July 23 of this year.

Mr. ECKHART. Did you receive any copies of the accident report on any of these planes?

Captain SMITH. Yes, sir; I received the accident reports and trip reports made by the Westinghouse people.

Mr. ECKHART. Made by the Westinghouse people?

Captain SMITH. Yes, sir.

Mr. ECKHART. What about the report made by the McDonnell people?

Captain SMITH. No, sir; I had never seen a McDonnell accident report until just recently.

Mr. ECKHART. Mr. Chairman, the point that I am trying to develop here is the fact that Westinghouse contends that they did not receive copies of the accident reports on the aircraft that crashed, which involved their engines. And I undertood that was one of the responsibilities of the BAR at either St. Louis or at Kansas City, to make these available to the contractor.

Do you have any comment on that, Captain Smith?

Captain SMITH. It would be impossible for the BAR at Kansas City to make a report to Westinghouse on an accident on which the BAR had no details at all, and we were not informed through Navy channels at the BAR office of these accidents at the time they happened; we had gotten our information merely through newspaper reports.

Mr. ECKHART. Captain Blamphin, I will ask you if you ever received any accident reports on these aircraft.

Captain BLAMPHIN. We have on file, I know, because I have seen the report—the report of the last accident that occurred with the J–40 engine—I believe it is the last accident. At any rate, it is the one where it occurred immediately after takeoff, presumably because the pilot was not using the afterburner—I don't know exactly how that came to the Bureau of Aeronautics representative there. It is on file, but, of course——

Mr. ECKHART. Have you ever made that available to the contractor there—to Westinghouse?

Captain BLAMPHIN. I haven't taken direct action to make that available, but I know that the contractor is familiar with it. It is possible that the contractor has received a copy from other sources. The contractor, as I understand it, did furnish technical representation to investigate the causes, or to try to determine the cause, of the crash.

Mr. ECKHART. I am aware of that. But it was pretty much of a hit-or-miss proposition as to whether or not they could get the actual information they wanted from the people that they talked to; they were more interested in receiving something of an official nature from the Navy, which was their customer, and which was primarily concerned with these engines. Do you feel it is a responsibility of the BAR at Westinghouse, assuming that the contract is going on right now, to keep your contractor advised as to what difficulty the engine is experiencing, either on the test stands or in flight test by the airframe manufacturer?

Captain BLAMPHIN. Yes.

Captain SMITH. The contractor was well informed on that. He had field service people at McDonnell's plant on a continuing basis at all times.

Mr. ECKHART. I understand that. I am talking about the responsibility of the BAR in bringing these matters officially to the Westinghouse Co.

Captain SMITH. Yes, sir. When we received a RUDM, or a defective material report, the BAR at Kansas City immediately forwarded this report to the prime contractor for his comments or explanations or recommendations in regard to a fix in the matter, if there was one that he thought could be incorporated in the engine.

Mr. ECKHART. That was just one type of report. Weren't there other test reports being prepared by the manufacturer of the airframe?

Captain SMITH. If there were, they didn't come through the BAR office.

Mr. ECKHART. Would the BAR at St. Louis take it upon himself to send reports like this to the BAR at Kansas City, so they could be taken up with the manufacturer?

Captain SMITH. Yes, sir. We conversed back and forth on an informal basis, we were well informed of the problems themselves.

Captain MURPHY. I would like to comment on that, if I may. I am a little rusty, I would have to refresh my memory, but I believe once the BAR puts his endorsement on an accident report, which puts it essentially in the Navy's hands, as I recall, we are bound by an automatic distribution list, we are told what to do with that report. I do not recall at the moment whether it includes distribution to, for example, component manufacturers of the airplane. Up until that endorsement, however, in the case specifically of McDonnell and Westinghouse, each would have seen everything the other had prepared, all the standard material had been in the hands of each of them, though perhaps not through official naval channels.

For example, we would insist that Westinghouse be a member of the investigating body of the accident, they participated in the investigation.

Mr. ECKHART. Captain Smith, during your tour as BAR at Kansas City, did you make any recommendation with respect to termination action being taken on any of the J–40 contracts?

Captain SMITH. To the best of my knowledge I was asked by the Bureau of Aeronautics to make my recommendations in the latter part of 1953 as to what, in my opinion, was the most economical cutoff point in the J–40–22 program.

And after taking an inventory of machine parts and large components that were in bonded stores in the plant, I replied to the Bureau that my recommendation was that the most economical cutoff point was 150 engines.

Mr. BALWAN. Who made the request to you, and to whom did you reply?

Captain SMITH. The request came to me from the Production Division of the Bureau of Aeronautics by telephone. It could possibly be followed up by an immediate letter at a later date. That was confidential, insofar as the contract was concerned, and on the BAR staff we made our own survey, and the contractor was not consulted as to what our recommendations were, or whether we were making any.

However, it was common knowledge at that time that there was a cancellation in the wind, due to the fact that a substitution in engines had been made for the F–3–H program.

Mr. BALWAN. Is a decision of that nature at the level you have to work with the Chief of the Bureau.

Captain SMITH. My reply was by dispatch directed to the Chief of the Bureau of Aeronautics; yes, sir.

Mr. HOLIFIELD. In other words, you would make the recommendation to the Chief of the Bureau?

Captain SMITH. Yes, sir.

Mr. HOLIFIELD. And it would be up to him to make the policy decision?

Captain SMITH. When that dispatch arrived at the Bureau, it would be routed to the cognizant division within the bureau, which would take the necessary action.

Mr. HOLIFIELD. Do they have a BAR at that level to make that type of a policy decision, or does the Chief of the Bureau make it?

Captain SMITH. Not being in that Bureau, sir, at that time I can't answer that.

Mr. HOLIFIELD. I see Admiral Russell has his hand up.

Admiral RUSSELL. The decision would be mine, sir. The people on my staff would make recommendations to me, but the decision was mine as Chief of the Bureau, sir.

Mr. HOLIFIELD. Thank you.

Mr. BALWAN. What bureau members consulted with you at Kansas City on terminations or problems—did you have any people from the Bureau come out?

Captain SMITH. Oh, yes; people from the production division came out regularly.

Mr. BALWAN. Did you have any people at the level of the Chief of the Bureau, the Deputy or the Assistant Chief?

Captain SMITH. Yes, sir; the Chief of the Bureau of Aeronautics, the Assistant Deputy Chief of the Bureau of Aeronautics, the Assistant Chief of Material and Services, the Chief of Naval Material, and the Assistant Secretary of the Navy have visited that plant during my tour of duty out there, sir.

Mr. ECKHART. Prior to the time, Captain Smith, that you received any notification from the Production Division to determine at what point these contracts could be most economically terminated, had you made any conclusions as to the progress being made by Westinghouse on these contracts?

Captain SMITH. Would you repeat that question?

Mr. ECKHART. I will ask another question.

Were you satisfied with the progress that was being made specificationwise and deliverywise on the contracts presently that Westinghouse has?

Captain SMITH. I believe that in my monthly report, which is made on a form DD–375, that while I was BAR at Kansas City I was very critical of Westinghouse's ability to meet their promised engineering schedule, and I believe on occasion in the report stated, in my opinion, why they would not be able to meet their production schedule for this or the next month, due to the lack of critical parts from a subcontractor, or engineering bugs, which trouble we were having.

Mr. ECKHART. Did you have an engineer assigned to your staff at the time?

Captain SMITH. Yes, sir; I had 2 civilian engineers, and 1 naval officer who was an engineer.

Mr. ECKHART. Will you state what his opinion was with respect to whether or not these contracts should have been continued, so far as progress was being made technicalwise.

Captain SMITH. No, sir; I couldn't say.

Mr. ECKHART. Captain Blamphin, I would like to direct your attention to a conference that we held in your office on October 4, at which was present your executive officer and Mr. Bozarth, the engineer.

You indicated to me at that time that if Westinghouse had not been involved in this contract, the contract would have been terminated much sooner.

Would you explain to the committee what you meant when you made that statement?

Captain BLAMPHIN. I don't recall that statement. Could you give me more context, to refresh my memory?

Mr. ECKHART. I believe we were talking about the size of the companies that are involved in aircraft manufacture, airframe manufacture, and the production of engines.

And the question came up as to whether or not the small contractors would have been given the same consideration if they failed to meet the delivery schedule and failed to come up to the specifications as required by the Navy.

Captain BLAMPHIN. I still don't recall anything on that subject. The subject is new to me, and I do not recall the previous statement that you attribute to me.

Mr. ECKHART. I have no further questions of this witness, Mr. Chairman, but I would like to——

Mr. HOLIFIELD. Before you start on any of the other witnesses, it is time now for adjournment for lunch.

Let us try to get back at 1:30, within an hour, and if we can make it, we will begin then; if not, if a quorum is not present, we will start at 1:45.

But the same witnesses will take the stand for a brief period of time, and after that we will have the witnesses from the McDonnell Aircraft Co.

(Whereupon, at 12:30 p. m., the subcommittee recessed, to reconvene at 1:30 p. m., of the same day.)

AFTERNOON SESSION

Mr. HOLIFIELD. The subcommittee will be in order. Mr. Eckhart, you may proceed with your questioning.

FURTHER TESTIMONY OF CAPT. CHARLES E. SMITH, HEAD, AERONAUTICS PROGRAM BRANCH, OFFICE OF NAVAL MATERIAL, NAVY DEPARTMENT; ACCOMPANIED BY CAPT. A. M. BLAMPHIN, BUREAU OF AERONAUTICS REPRESENTATIVE, WESTINGHOUSE, KANSAS CITY, MO.; CAPT. C. H. S. MURPHY, COMMANDING OFFICER AND DIRECTOR, SPECIAL DEVICES CENTER, PORT WASHINGTON, N. Y.; AND CAPT. J. PARKE SAGER, BUREAU OF AERONAUTICS REPRESENTATIVE, ST. LOUIS, MO.

Mr. ECKHART. Captain Sager, how long have you been with BAR in St. Louis?

Captain SAGER. I relieved Captain Murphy the 28th of October last year.

Mr. ECKHART. Captain Murphy, how long were you the BAR officer at St. Louis?

Captain MURPHY. I was the Bureau of Aeronautics representative from the 15th of July, 1952, until the 28th of October, 1954.

Mr. ECKHART. During the time that you served as BAR officer at St. Louis, did you have occasion to write any letters to the contractor there complaining about the handling of Government-furnished equipment, machine tools or anything of that nature?

Captain MURPHY. During my period at the Bureau of Aeronautics there were at least a few occasions when official letters were addressed to the contractor in regard to what we considered a less than ideal handling of Government-furnished property.

Mr. ECKHART. Does "less than ideal" exclude the term "negligence" on the part of the contractor?

Captain MURPHY. "Less than ideal" would include any factor that made it less than what we held as the standards, and to answer your question, that would be a factor if it existed.

Mr. ECKHART. I understand that under date of October 8, 1954, the Bureau of Aeronautics representative sent a letter to McDonnell Aircraft and the subject was Government-Furnished Property, Liability for Damage to.

Now at the time the subcommittee staff was furnished copies of this correspondence, there was no indication that any security matter was contained in these letters. I have since been advised by Captain Sager, the present BAR, that both of these letters should be classified "Confidential." Did you at the time you wrote this letter consider that this was confidential security information?

Captain MURPHY. Well, I am relying on memory for the specific content of those letters now, and I can only say that if I didn't classify them, I didn't consider them classified at that time.

Mr. ECKHART. I wonder if I could show you a copy of this letter, Captain Murphy, and have you determine from its contents whether or not you think there is any classified material contained therein.

Has a copy of this letter been made available to you, Captain Murphy?

Captain MURPHY. Yes; I have a copy of the letter.

Mr. ECKHART. At this time, Mr. Chairman, I would like to request that Captain Murphy read a letter under date of October 8, 1954, which he addressed to the McDonnell Aircraft Corp.

Mr. HOLIFIELD. Captain Murphy, will you please read the letter into the record?

Captain MURPHY. For my information, please, Mr. Chairman, do you want the entire thing read, references, or just the substance of the letter?

Mr. ECKHART. I don't think it will be necessary to use any references, just start with paragraph 1 of the letter.

Captain MURPHY. This is a letter:

From: Bureau of Aeronautics representative, St. Louis, Mo.
To: McDonnell Aircraft Corp.
Subject: Government-furnished property, liability, for damage to.

There are four references which will occur in the body, but I think, as counsel said, they are not pertinent in themselves.

1. It is the finding of the BAR, St. Louis, that the liability for the damage to Government property reported by references (*b*) and (*c*) is in the McDonnell Aircraft Corp. under the terms of reference (*a*), by virtue of lack of good faith on the part of contractor management. Such lack of good faith is evidenced

by the failure of the contractor to take the positive action which the circumstances clearly indicated to be necessary, in the following respects:

(*a*) To promptly, thoroughly, and vigorously analyze and investigate the circumstances under which damage had occurred, in order to determine corrective measures necessary.

(*b*) To put into effect on the urgent basis that was clearly necessary, all of the physical measures that could reasonably preclude further instances of damage.

(*c*) To properly indoctrinate personnel involved with the handling of Government-furnished property with the necessity for exercising unusual care therein.

2. As further evidence of the lack of complete positive action, which the contractor could normally be expected to take on his own initiative in the discharge of his responsibility for safeguarding Government-furnished property, it must be noted that even as late as the first of this week it was necessary for the BAR to bring to the contractor's attention the fact that a grave deficiency existed in the manner in which the ramp aren was being kept clean. That this occurred at this late date despite the fact that the BAR, without this additional evidence of apparent continuing failure of management to adequately discharge its responsibilities, had already verbally informed contractor top management that he was finding them liable, appears to the BAR to considerably substantiate his finding.

3. On the basis of the estimate contained in reference (*d*), the BAR considers the sum of $25,688 to represent a fair and reasonable cost for the repair of the damaged engines.

4. The BAR has limited his finding of liability to that incurred on only 2 of the 9 J40–WE–22A engines damaged by passage of foreign objects during this calendar year. This limitation is based on the fact that a true appreciation of the urgency that attached to this matter had not been recognized when operations after the grounding of the engines was first resumed. However, after the conferences held with contractor managerial personnel on or about July 19, 1954, the two instances of damage on August 23 and 24, 1954, and the culminating visit of the BAGR-CD in person to express his concern on the seriousness and urgency of the matter on August 24, 1954, it is not conceived by the undersigned how any further indications could have been given to contractor management that the most urgent and extraordinary measures on his part were obviously in order. The fact that action in extremis, which had been so clearly shown to be required, was still not effectively taken except in those instances when personnel of the BAR office virtually directed it, until after the damage reported by references (*b*) and (*c*) had occurred, is the basis for limiting the finding of the liability to the two instances cited.

5. It is the fervent hope of the BAR, St. Louis, that the finding transmitted herein will receive full, honest, and soul-searching consideration by the contractor. It is fully realized that the terminology of reference (*a*) allows considerable room for legalistic maneuvering on the question of contractor liability. Should the contractor refute the finding of the BAR, and in subsequent action, assuming the finding of the BAR is upheld (which it must be added parenthetically is no certainty), succeed in winning an appeal, it would certainly enhance the contractor's reputation for sea lawyering. It could hardly serve, though, to convince anyone fully familiar with the circumstances involved, that it represented a sincere effort by the contractor to serve the customer to the maximum of his ability. Therefore it is again hoped that this letter will not be refuted for the sake of so doing, nor reviewed with preconceived decisions as to the position in the matter.

6. This letter is written in the spirit of openness and frankness that has been the cornerstone of the transaction of all business between the BAR, St. Louis, and the McDonnell Aircraft Corp. Disregarding the infinite variety of minuscule legal interpretations that can be put upon the provisions of reference (*a*) regarding contractor ability, the BAR feels that the only issue involved is whether the contractor in this instance did actually do everything reasonably possible to preclude damage to engines by passage of foreign objects. If the contractor will accept this belief, and review his actions accordingly, the BAR can only be optimistic that his finding will be concurred in.

7. In order that the provisions of current directives may be complied with the contractor is requested to transmit his position on this letter to the BAR, St. Louis, for further transmission to the contracting officer in the Bureau of Aeronautics. The BAR is most anxious to have this matter resolved prior to his impending detachment and accordingly requests that the reply be expedited.

C. H. S. MURPHY.

Mr. ECKHART. Can you recall, Captain Murphy, receiving any reply to this letter from the McDonnell Aircraft Corp. prior to your detachment?

Captain MURPHY. Yes; I did receive such a reply.

Mr. ECKHART. Do you remember what the sense of this reply was?

Captain MURPHY. I happen to have a copy of the reply right here, and the sense of it was to take an extremely strong stand that there was no negligence on the part of contractor management in this matter.

Mr. ECKHART. And when were you detached from St. Louis?

Captain MURPHY. I was detached on the 28th of October. The reply I received was dated the 15th of October, at which time I was quite busy in the process of turning my office over to my relief, Captain Sager, who was then on board.

Mr. ECKHART. Do you recall whether or not you directed any letters of a similar type to the contractor during your period at the BAR?

Captain MURPHY. There were some instances of earlier correspondence directed to the contractor pertaining to damage that occurred to a type of Government-furnished property that within the Navy is referred to as Government-furnished equipment. It is equipment supplied which is an end item in itself that is installed in the aircraft as a part of the finished aircraft.

Mr. ECKHART. But there were other instances other than this letter of October 8.

Captain MURPHY. There were other instances; yes.

Mr. ECKHART. Captain Sager, I understand you succeeded Captain Murphy?

Captain SAGER. Yes, sir.

Mr. ECKHART. Since you have been the Bureau of Aeronautics representative there at St. Louis, have you written any letters to the contractors on the subject similar to that just discussed by Captain Murphy?

Captain SAGER. Yes, sir.

Mr. ECKHART. Do you happen to have any of those letters with you now?

Captain SAGER. I believe I have, sir. Yes, sir; I have the forwarding letter of Administrative Board of Investigation that I directed to look into foreign object damage.

Mr. ECKHART. What is the date of that letter?

Captain SAGER. August 5, 1955.

Mr. ECKHART. August 5. Were there any letters previous to that date?

Captain SAGER. Are you referring to letter of July 29, 1955?

Mr. ECKHART. No; I am referring to the letter of June 27, 1955.

Captain SAGER. I don't believe I have a copy of that letter, Mr. Eckhart.

Mr. ECKHART. At this time, Mr. Chairman, I would like to show the witness a copy of a letter dated June 27, 1955, which purports to be a letter from the BAR representative, St. Louis, to McDonnell Aircraft Corp. with the typed signature J. P. Sager. I ask you whether or not you recognize this letter?

Captain SAGER. Yes.

Mr. ECKHART. Rather than read the entire letter into the record, Captain, could you just summarize the contents of that letter?

Captain SAGER. The damage due to a jet engine by foreign particles at McDonnell prior to June 27 had been numerous and toward the immediate time preceding June 27 had been on the increase. As a result of these occasions, I wrote an official letter to McDonnell on what I considered excessive damage to Government-furnished equipment by the contractor.

Mr. ECKHART. Could you summarize that in terms of the equipment involved?

Captain SAGER. The equipment that I am specifically speaking of is jet engines.

Mr. ECKHART. What type of jet engines?

Captain SAGER. J-40's, J-71, and J-57, I believe.

Mr. ECKHART. Would you be able to go through that letter and just summarize it paragraph by paragraph rather than reading the entire thing into the record?

Mr. BALWAN. Have you any objections to reading it?

Mr. ECKHART. Well, there is an objection to one part of it and that has been cleared with Admiral Russell and Captain Sager.

Mr. BALWAN. Captain Sager would know what that is and could delete that.

Mr. Chairman, we would probably get more out of this.

Mr. HOLIFIELD. Maybe you had better read the letter and delete the paragraphs referring to classified material.

Captain SAGER. I will start with paragraph 1 and delete the preface and references:

The Bureau of Aeronautics representative, St. Louis, is most seriously disturbed by an alarming condition which presents itself within the McDonnell Aircraft Corp., and it is felt that the matter must be brought to the attention of management of the corporation for immediate remedial action.

2. It has become apparent to the BAR that McDonnell Aircraft personnel are becoming increasingly negligent and are exhibiting a complete lackadaisical disregard for the Government-furnished equipment supplied the contractor, with which to build aircraft. Although neglect is indicated in many areas of the use of Government-furnished equipment, the immediate concern is over the excessively high mortality of aircraft engines, as a result of foreign object passage and the dropping of engines.

3. By reference (*a*) the Bureau of Aeronautics representative, St. Louis, informed the McDonnell Aircraft Corp. that the BAR considered the contractor liable for damages to Government-furnished equipment, engines which had been damaged, in that the contractor did not take positive action in the following respects:

(*a*) To promptly, thoroughly, and vigorously analyze and investigate the circumstances under which the damage had occurred in order to determine corrective measures necessary.

(*b*) To put into effect on the urgent basis that was clearly necessary all of the physical measures that could reasonably preclude further instances of damage.

(*c*) To properly indoctrinate personnel involved with the handling of Government-furnished property with the necessity for exercising unusual care therein.

4. The McDonnell Aircraft Corp. answered reference (*a*) with reference (*b*), by assuring the BAR that the subject problem was considered of prime importance to the contractor, and pledged continued vigilance and determination to minimize the recurrence of damage to engines due to foreign objects.

Mr. HOLIFIELD. Will you please at that point just clarify what you mean by "damage by foreign objects?" Was this a matter of these jet engines sucking these objects off of the ramps or off the ground into the engine, the intake?

Captain SAGER. A jet engine, sir, is like—probably most of you are familiar with steam turbines, have small, little, blades, and the axial-

flow engine, any hard object such as a stone, a bolt, or a nut usually damages the engine where it has to be torn down and repaired, and it is that kind of hard object which I am talking about.

Mr. HOLIFIELD. Thank you.

Mr. BALWAN. How does that get into an engine?

Captain SAGER. There has been some evidence in some airplanes where it can be lifted from the ground.

Mr. BALWAN. A bolt can be lifted from the ground?

Captain SAGER. In the particular case we are talking about there was no evidence from the little experiment that I made that that could be done. It was something that came loose from the fuselage or was inadvertently left in the air passageway immediately in front of the engine.

Mr. BALWAN. What could be left in an air passageway?

Captain SAGER. Well, tools, screwdriver, wrench, maybe a loose bolt or nut or washer would fall out of a workman's pocket, maybe a button off his clothes. Shall I proceed?

Mr. HOLIFIELD. Proceed.

Captain SAGER (reading):

5. Records of this office indicate that subsequent to the reference (*a*), BAR, St. Louis, letter to the contractor, on October 8, 1954, there have been a total of 32 recorded instances of foreign object passage through engines. Of these 32 instances, a total of 14 engines have been damaged to such an extent so as to require their return to the engine manufacturer for overhaul. Of these 14 engines, 10 involved J–57 engines, 3 were J–71 engines, and 1 was a J–40 engine. Statistically speaking, this means that the McDonnell Aircraft Corp. is returning to the engine manufacturer for overhaul or repair, an engine approximately every 80 hours of flight time, on their combined test programs, as a result of foreign object damage. In addition to engines lost to overhaul, many man-hours and valuable flight-test time is lost in conducting inspection and repair of engines which have received any minor damage as a result of entrance of foreign objects. This is considered a deplorable waste of Government funds, manpower, and time which is so valuably needed during this period to expedite both the F–101 accelerated development test program, and the F3H–1N, 2N, flight-test demonstrations. The contractor steadily increases his requirements for additional spare engines to support his present test programs, and on the other hand, continues to reduce his spares by damage to engines. This places doubt in the mind of the BAR, St. Louis, as to whether the contractor is completely aware of the extreme importance which the Government places on the expeditious and successful progress of the F–101 and F3H–2N programs.

The next paragraph, sir, is classified. To go on, skipping a paragraph:

7. In addition to damages incurred to engines by foreign-object passages, records show that there have been three instances since May 31, 1955, in which J–71 engines have been damaged by shop personnel due to improper handling or dropping of engines. Investigation of these instances revealed that the shop personnel were not properly instructed by their supervisory personnel in the use of engine-handling equipment. Further examples of disregard for safety procedures is evidenced by contractor personnel handling 5,000-pound engines, with bomb dollies having a 2,000-pound lifting capacity, and crated engines weighing in the vicinity of 8,000 to 10,000 pounds, with a forklift having a 6,000-pound lifting capacity.

8. The contractor has not complied with the terms of either the Navy or the Air Force airframe contracts in that they have not properly informed the contracting officer of loss, destruction, or damage to Government-furnished property as required by armed services procurement regulation, appendix B, section 402.2 (a). In practically all cases of damage to engines, the information concerning the incidents has been discovered by, and brought to the attention of, the BAR, by Navy inspection.

9. It is the opinion of the BAR, St. Louis, in view of the preceding information set forth in this letter, that the McDonnell Aircraft Corp. has not prosecuted vigorously nor with "sound industrial practice" attempts to minimize damage to Government-furnished equipment, as was pledged by reference (*b*). Accordingly, the contractor is requested to investigate the circumstances set forth within this letter and submit a complete report to the BAR of the results of said investigation.

10. Inasmuch as this is the second instance within a 9-month period that the BAR, St. Louis, has been required to apprise management by letter as well as by conferences with BAR and MAC personnel, of these conditions within the plant, it is the opinion of the BAR that the question of liability for damages which have occurred to these engines should be considered in the final redetermination of the contract price. A board of investigation is being immediately formed by the Bureau of Aeronautics representative to investigate this matter and report to the Chief of the Bureau of Aeronautics.

J. P. SAGER.

Mr. ECKHART. In the event, Captain, that these engines have to be returned to the engine manufacturer for overhaul, who is responsible for paying the cost of the overhaul, forgetting for the moment that we have any boards to determine liability?

Captain SAGER. This is Government-furnished equipment and it is paid by the Government as I understand it.

Mr. HOLIFIELD. Has this determination of this board become an item of claim by the Government for adjustment in termination of the contract?

Captain SAGER. This is in the process, and the final paper action is at the Bureau of Aeronautics level.

Mr. HOLIFIELD. But there has been a claim put in for damages as a result of this complaint?

Captain SAGER. I can't answer that, Mr. Chairman. That claim for damage would come from the Bureau of Aeronautcs themselves. I recommend and give them my findings.

Mr. HOLIFIELD. The findings of this have been made, and those findings have been forwarded to the Chief of the Bureau?

Captain SAGER. That's correct, sir.

Mr. BALWAN. This was a recommendation by you for an investigation for McDonnell to undertake?

Captain SAGER. I recommended that McDonnell look into it and I set up a board of my own officers and made an investigation, and it is the findings of that investigation which were sent to the Chief of the Bureau of Aeronautics.

Mr. BALWAN. What you read now is not the result of the conducting of your investigation?

Mr. ECKHART. Mr. Chairman, I would like to say that has been requested of the Bureau. I was advised by the Bureau that it has been sent from the BAR office to the Bureau of Aeronautics general representative in Dayton, has been reviewed by them, returned to the BAR in St. Louis, and then forwarded to the Bureau of Aeronautics, and it was received in the Bureau last Thursday or Friday. I am sure that someone here might have that document now.

Mr. HOLIFIELD. Does anyone in the audience from the Navy have that document that is referred to?

Mr. ECKHART. I believe Admiral Dixon may have some information about the document.

Mr. BALWAN. Did you say, Admiral Dixon——

Admiral DIXON. What was the question, Mr. Eckhart?

Mr. ECKHART. In our conference Saturday afternoon, Admiral, the subject was brought up that had been discussed previously with Captain Dietrich, and he had expected it to arrive at the Bureau. You have indicated to me that you had seen the report come over your desk sometime Friday.

Admiral DIXON. That is correct. We have received a copy of that report.

The report went to the Bureau of Aeronautics general representative in Dayton, Rear Admiral Lundquist, for his official action en route to the Chief of the Bureau of Aeronautics.

The Bureau of Aeronautics General Representative in Dayton returned the document to Captain Sager for further action and so the action on the board of investigation is incomplete.

Mr. ECKHART. Where is the board action right now? Where does it physically repose?

Admiral DIXON. It was in my office last week. Where it is right now I do not know.

However, it is not the final action on the board of investigation because Admiral Lundquist sent it back to Captain Sager, BAR, St. Louis, for additional information prior to making his endorsement.

Mr. ECKHART. Has that additional information been forwarded, Captain Sager?

Captain SAGER. Just before I came to Washington for this meeting.

Mr. ECKHART. Would you happen to have a copy of that investigation with you?

Captain SAGER. I have a copy of my investigation, but not with the endorsements.

Mr. ECKHART. What did the investigation show? What were their findings and their recommendations with respect to the contractor's responsibility?

Mr. BALWAN. May I interpose a question here, Mr. Chairman? To whom did the captain address his report originally?

Captain SAGER. To the Chief of the Bureau of Aeronautics.

Mr. BALWAN. The Chief of the Bureau of Aeronautics?

Captain SAGER. Via BAGR Central District which is in the normal chain of command.

Mr. BALWAN. What is the date that you sent the report of your investigation to the Bureau?

Captain SAGER. I mailed the first one on the 5th of August to the Chief of the Bureau of Aeronautics.

Mr. BALWAN. Are negotiations of this type normally handled between yourself and the Chief of the Bureau?

Captain SAGER. Will you restate your question, sir?

Mr. BALWAN. Is it normal for you to handle problems like this directly with the Chief of the Bureau?

Captain SAGER. Well, I report, being a representative of the Chief of the Bureau, almost everything I do, every action I take. It is my duty to inform him on what I do.

Mr. ECKHART. Mr. Chairman, I think I might be able to clear this up. Captain Sager in some instances reports to the Bureau of Aeronautics through BAGR, which is the Bureau of Aeronautics General Representative, and that was the routing of this document, as I understand.

Captain SAGER. It has the BAGR endorsement.

Mr. HOLIFIELD. Did he answer your last question, Mr. Eckhart?

Mr. ECKHART. No, sir; I am waiting for an answer to that now.

Captain SAGER. There are 11 recommendations on this board that were submitted to me, and then the letter that I sent this on in I have either stated I concur or my opinion of those findings.

Mr. ECKHART. What were some of those findings?

Captain SAGER. Well, they are almost all pertinent, Mr. Eckhart. I probably should read them all.

Mr. HOLIFIELD. All right. Will you start in with the first, please?

Captain SAGER (reading):

Recommendation 1: It is recommended that the contractor present sufficient detail when reporting damage to Government-furnished equipment so that a complete understanding of all the facts of the case may be obtained. It is further recommended that reports of foreign-object passage or handling damage to engine be initialed or signed by the McDonnell chief of quality control and the vice president in charge of manufacturing.

Mr. ECKHART. Captain Sager, could you indicate after you read each one of these whether or not you concurred in the recommendation?

Captain SAGER. Yes, sir, I think I can. I will have to shift back and forth here. I haven't looked at this for some time.

And that the contractor top management is aware of damages which are occurring to Government-furnished equipment.

I concurred in that.

2. It is recommended that maximum load limit capacities be clearly marked on all materials-moving equipment within the contractor's plant and that these load limits be strictly adhered to in all cases.

I concurred in that. I think if I may, Mr. Chairman, if I can read these recommendations and then read my covering letter, it will make it a little faster, and I believe will be just as plain.

3. It is recommended that investigation be made into an improved engine dolly that is adequate to handle the J–71 engine and any other engines under development which may exceed the weight of the J–71 engine.

4. It is recommended that an intensive and continuing educational program be conducted to familiarize McDonnell personnel with the cost involved in Government-furnished equipment. The cost should be set forth as monetary cost of the material, cost in terms of possible loss of life when objects are left adrift in airplanes, and the cost in time lost to a research program when vitally needed engines are lost to a flight-test program.

5. It is recommended that an intensive program be conducted to improve the working habits of McDonnell manufacturing and operating personnel in an effort to keep foreign objects out of aircraft and reduce handling accidents to Government-furnished equipment.

6. It is recommended that the prevention of foreign-object passages in handling damage be made known with wide publicity to shop personnel and that their suggestions be earnestly solicited.

7. It is recommended that the built-up area within the contractor's plant be declared a restricted area and be fenced off to prevent any possible tampering. The board found no evidence during its investigation which would indicate any damage to engines was due to a malicious act by any person. However, inasmuch as it is recognized that the engine built-up area is one of the vital areas of the contractor's manufacturing process, it is felt that it should be adequately protected.

8. It is recommended that engine test stands with swing-open inlet protective screens be provided with a hasp and a lock to lock the screen in place at all times when an engine is installed on a stand. The key to the duct screen lock should be kept at all times in the possession of one man, the qualified engine operator, and passed on to his successor as the shift changes.

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9. It is recommended that the bell-throat type inlet be used on all engine test stand operations except where specific inland duct data and thrust measurements are required.

10. It is recommended that the amount of ground running time on engines which are operated by McDonnell Aircraft Corp. be reduced to less than the susceptibility for the passage of foreign objects.

11. The board recommends, in view of the results of this investigation, that the McDonnell Aircraft Corporation be held financially liable for the damages which were suffiered by Government-furnished property covered in this report.

My letter of transmittal, the essence of it:

1. The board of investigation was convened by the Bureau of Aeronautics representative, St. Louis, on June 30, 1955 for the purpose of inquiring into certain apparent irregularities in the handling of Government-furnished equipment by McDonnell Aircraft Corp. The BAR concurs with the findings, opinions, and recommendations of the board. These are forwarded as enclosure 1 hereto with the following remarks:

Paragraph 2 (c) (1). A study is presently in progress to establish a more satisfactory means of reporting damage to Government-furnished equipment. These recommendations shall be considered jointly by BAR St. Louis and appropriate further recommendations made with regard to the improved design of engine dollies.

Paragraph 4 (c) (4) (5) and (6). At the present time the contractor has instituted an extensive educational program which thus far is considered satisfactory to BAR St. Louis. It must be emphasized, however, that the present program must be continued.

Paragraphs 4 (c), (7), (8), (9), and (10) will be taken up with the contractor and suitable solutions to the problems involved will be effected. BAR St. Louis notes that since the foreign obstacle damage to J–57 engine—

I have to delete part—

no foreign-object damage has occurred to any engine operated by McDonnell through August 4, 1955.

The date of this letter, sir, is August 5.

During this period of time the contractor has operated engines about 800 hours. The BAR considers this relatively long-free period of accident-free time is probably the result of the contractor's action reported on paragraphs—

of this board I just mentioned.

Mr. HOLIFIELD. It would appear to the Chair that the Navy officials were right on the job on this particular case and they are to be commended for calling that to the attention of the aircraft company, and it would also appear that the aircraft company cooperated with you 100 percent.

Captain SAGER. Yes, sir.

Mr. ECKHART. At this time, Mr. Chairman, I would like to mention the significance of why I put the committee members through the reading of all these letters, and that is, it appears to me personally the fact they had so much difficulty with foreign objects being taken into these engines, possibly the Westinghouse J–40 engines, even though they may have been characterized as the cause of the accident, it could have been objects going into the engine as the result of negli-

Captain SAGER. This letter covered all three type engines.

That is, of course, my personal opinion, but I thought it would be pertinent to bring in here that a great deal of difficulty has been experienced with the Westinghouse engines, and also the –71 engine at the McDonnell plant.

In connection with that, Captain Sager, I would like to ask you if they have been having difficulty with J–71 engines as well as the J–40s.

Captain SAGER. Are you speaking about foreign-object damage?

Mr. ECKHART. Yes, sir.

Captain SAGER. This letter covered all three type engines.

Mr. ECKHART. Have the J–71's been returned to the manufacturer to be overhauled?

Captain SAGER. We would have to consider each instance, I believe, Mr. Eckhart, to the extent of the damage.

Mr. ECKHART. Do you feel that the damage to the J–71 engines is having any effect on your progress productionwise of the F3H–2N program?

Captain SAGER. Will you restate that question, please, sir?

Mr. ECKHART. Do you feel that the difficulties by virtue of damage to the J–71 engines is having any effect productionwise on the F3H–2N program? I mean in this letter you indicate damage to Government-furnished equipment had an effect on the progress of the F3H–1N program. I was wondering if you found the same thing with respect to the F3H–2N because of damage to the J–71.

Captain SAGER. Mr. Eckhart, at the time I believe—I am pulling from memory—that we were conducting a flight-test program, we had very few J–71 engines available. Therefore, if one was damaged due to particles, it possibly could lengthen the flight program. At this time, to answer your question, more engines are available, and it probably would not deter the flight-test program.

Mr. ECKHART. I have no further questions of these witnesses, Mr. Chairman. I would like to say for the record that Mr. Morgan and myself are greatly impressed with the way that Captain Sager is conducting the operations out there in the St. Louis department.

Captain SAGER. Mr. Chairman, may I ask a question? Mr. Eckhart asked a question earlier this morning. I may be able to clarify a point on the AAR's.

Mr. HOLIFIELD. The Chair would like to say this: It is the intention of the Chair to give each one of the groups that appear before us unrestricted opportunity to give any testimony which they think is pertinent to this whole inquiry.

The inquiry was brought about by sensational stories in magazines and by radio commentators, and articles in different newspapers causing the interest in this. This subcommittee was directed to hold a fair and impartial hearing to allow the facts to be spread upon the record so that facts, complete facts, would be available to the American people.

So at any time that any witness wishes to volunteer additional information, he will be given that opportunity, if it is pertinent to the record, of course.

You may proceed.

Captain SAGER. Thank you, sir.

Mr. Eckhart, you asked about addressing accident reports. I have a record of some of the recent accident reports of which BAR Kansas City is the A and B on it. Also pertinent is the remark that Westinghouse people were on the accident board.

I have a copy of the minority report which Westinghouse made themselves as a member of that board in an effort to perhaps clarify the committee on how the information is passed on.

Mr. ECKHART. How many of those AAR's were directed to the BAR Kansas City according to your records?

Captain SAGER. I would like to count those up. I only have those in part here, Mr. Eckhart.

Mr. ECKHART. Is it more than five?

Captain SAGER. I am sorry, I coldn't answer that without checking the Bureau's files, sir, because I don't know how many were involved. For instance, the one that involved the J–71 engines would not be sent there. That would be sent to Allison, and my words show that.

Mr. ECKHART. Captain Blamphin this morning testified that he only had one copy of an accident report, as I recall his testimony. He did not know how that got into his files.

I was wondering if your records there show that the BAR, Kansas City, was the addressee on those reports.

Captain BLAMPHIN. May I clarify my remarks, Mr. Eckhart?

Mr. ECKHART. Yes, sir.

Captain BLAMPHIN. I meant to explain that I had not seen the forwarding letter to me if there was such a forwarding letter, meaning that I am sure it got into our files in a very straightforward and legitimate manner, but whether it came as a matter of routine or a matter of special handling to be forwarded, I didn't know. Since then I see that we are marked for what looks to me to be one copy.

Mr. ECKHART. Do you recall, Captain Smith, whether or not you received accident——

Captain SMITH. I testified this morning that I did not recall seeing any of those reports. However, I do believe that there was one dated in May that arrived in the BAR, Kansas City, office before I was detached.

However, in regard to these accident reports, by the time we get a report of that kind, it has been pretty well discussed between the BAR people and Westinghouse management, and it is really ancient history by the time we get it. We are already in possession of the facts, due to visiting the scene of the accident and also from trip reports from the engineers who have been there. So I still don't recall having received that report in May.

Mr. ECKHART. Mr. Chairman, I have no further questions of these witnesses.

Mr. HOLIFIELD. Are there any further questions by the members of these four witnesses? I see the captain has his hand up. Will you go ahead, sir?

Captain BLAMPHIN. Sir, if you please, I would like to make a brief comment about one subject discussed this morning that Mr. Eckhart reported that I had made a statement, as I remember from this morning, concerning the performance of the Westinghouse Co. with regard to termination. That reported statement I didn't recall, I still don't recall it.

I would like to say for purposes of the record that I have no basis for evaluating their performance in terminations because I have had too little experience and I don't hold any such opinions.

Now I regret it very much if my remarks at Kansas City were so unclear as to lead to the report that Mr. Eckhart has, and I would like to ask that Mr. Eckhart and I look into that matter further to try and clarify the record.

Mr. HOLIFIELD. That will be permissible, and you may have such permission as is necessary to correct the record, to see that any errors

or misunderstanding can be deleted from the record. We would not want anything in there that you both agree shouldn't be in the record.

Captain BLAMPHIN. Thank you, Mr. Chairman.

Mr. ECKHART. Captain Blamphin and I have made arrangements on that.

(Subsequently Captain Blamphin submitted the following memorandum:)

DEPARTMENT OF THE NAVY,
BUREAU OF AERONAUTICS,
Washington, D. C., October 27, 1955.

TO HOLIFIELD SUBCOMMITTEE ON MILITARY OPERATIONS:

The following is submitted for insertion in the record, if acceptable, with reference to the question asked of Captain Blamphin by Mr. Eckhart on Tuesday as recorded on page 243 of the uncorrected minutes for Tuesday.

My recollections, since Tuesday, of matters discussed with Mr. Eckhart in my office at Kansas City, refreshed by reference to Mr. Eckhart's notes and further discussion with Mr. Eckhart Wednesday, indicates the probability that I had expressed the view, "If it were a smaller company, the termination would have been settled in less time than is required for a large corporation such as Westinghouse."

Respectfully,

A. M. BLAMPHIN,
Captain, USN, BAR Kansas City, Mo.

Captain MURPHY. Would a very brief summary be in order, Mr. Chairman?

Mr. HOLIFIELD. You may proceed.

Captain MURPHY. I am making this statement because so much of the testimony given here by the four of us was on a very specific subject which developed as a byproduct of the overall investigation.

We who have been, or are, in these field jobs live closest to the problems involved, and although the point has been made in some of the previous testimony, I would like to add my personal emphasis to the fact that when you have a large development, research and development program such as an entire aircraft weapons system involves with our national policy, that we rely on industry for the technical know-how to do those jobs, these are not the customer-consumer, buyer-seller relationship that there may be in buying shoes or bailing wire. This is a joint effort between the service involved and the contractor, and I would simply like to state that despite the testy nature of this correspondence which we are required to transmit in carrying out our duties in referring things to higher authority, in the case of the McDonnell Corp. it has been an extremely rare instance that a difficulty or problem hasn't been resolved between us without reference to outsiders. We have had a very excellent spirit of cooperation.

Mr. HOLIFIELD. The committee is glad to have that statement. We want, of course, any testimony, to be considered in the proper perspective. And anything such as this helps us to understand the problem. Thank you, Captain, for your testimony.

Just a moment.

Mr. LIPSCOMB. I may have missed the point, but was there ever any action on the letter which you wrote to McDonnell?

Captain MURPHY. I left before further action could be taken. That correspondence did go to the Bureau of Aeronautics for its disposal when it sees fit.

Mr. LIPSCOMB. What did happen? Is there anyone that can tell us what happened to that letter, what action was taken?

Captain MURPHY. The correspondence that I read to the McDonnell Corp. was answered by them with a position such that it put it in an area of complete difference of point of view. We had an entirely separate point of view, and it became up to my parent organization to make any determination. It went out of our hands.

Mr. LIPSCOMB. Mr. Chairman, I wonder if the counsel knows if any action was ever taken on the letter.

Mr. ECKHART. No, sir, I am not aware of any action that was ever taken on the letter of October 8, 1954, which is the letter you are referring to. However, the letter of Captain Sager's complaining of the same difficulties was written the 27th of June 1955, approximately 9 months later.

Mr. LIPSCOMB. What happened in the meantime; did they just drop the matter?

Mr. ECKHART. I directed that question to Captain Sager who succeeded Captain Murphy and was probably at the BAR——

Captain MURPHY. At the time my letter was written, there was a very definite action on the part of the company to correct some of the deficiencies that had been pointed out. They took positive action, or at least they began positive action since I was only there a short time.

The question, however, of liability for funds I did not follow that up for the simple reason that I left, and I felt my case was not sufficiently strong to make a strong recommendation to the Bureau because of the reply that the contractor gave me.

I did not feel that I had a tight enough case to continue to fight the battle if they corrected the situation at the plant. Then I left. Captain Sager then had occasion subsequently to take essentially the same action.

Mr. LIPSCOMB. Evidently they didn't take any action after your letter, if he had to write a similar letter several months later.

Captain MURPHY. I can't speak for what happened in the intervening 7 or 8 months.

Mr. HOLIFIELD. Apparently the record shows that these continued offenses, if you want to call them that, did occur after you left, Captain Murphy, and those occurrences were the ones that were the subject of your letter, were they not, Captain Sager?

Captain SAGER. That's right, sir.

Mr. HOLIFIELD. So, as far as the record shows, there was no appreciable improvement until after your letter of complaint?

Captain SAGER. That is essentially right, sir.

Mr. HOLIFIELD. Are there further questions?

Mr. HOFFMAN. I have one. I would like to ask whether any of the gentlemen at the table recall a time when an engine was submitted to the Department or a plane or a combination of both, and improvements were not suggested before it was used?

Captain MURPHY. To answer very generally, no; specifically, it would more difficult. If you mean an individual plane or engine, I don't think it would apply across the board. To any family of them, our job is really never to be satisfied with them, very frankly.

Mr. HOFFMAN. The purpose was to ascertain—wasn't it true that everything that was submitted to you, you found the necessity of suggesting improvements?

Captain MURPHY. That is a part of our inspection process, Mr. Hoffman. When the article gets ready for acceptance, an airplane, it goes through a company inspection, and then it gets submitted to our Navy inspectors. They will find some number of defects, normally minor type. Those are corrected. The inspector determines they have been corrected, and we say we can't find anything wrong with it at this time and we will accept it. But it is a normal process of acceptance of a complicated article to find——

Mr. HOFFMAN. You never had a plane or an engine submitted that you didn't have to suggest improvements, did you?

Captain MURPHY. In the case of an airplane, there has never been one you didn't find something that didn't require some fixing before final acceptance.

Mr. HOFFMAN. It is always a question of going through trial and error to get better equipment?

Captain MURPHY. Any of those that become chronic, we catch them and have them picked up in the production line to prevent their recurring.

Mr. HOFFMAN. It would be much easier if you could just go out and place an order and get a perfect product, one that would give you better service than any of the other countries, but that doesn't happen; does it?

Captain MURPHY. Not with complicated machinery; no, sir.

Mr. HOLIFIELD. To complete the record, could you tell us who was the Chief of the Bureau of Aeronautics during the time of your service?

Captain MURPHY. I went during——

Mr. HOLIFIELD. And the years that you served in that position?

Captain MURPHY. I gave the dates of my tour of duty to the reporter, which were from July 15, 1952, to October 28, 1954; when I went to St. Louis, Admiral Pride was Chief of the Bureau of Aeronautics. I don't recall the exact date of his release, but Admiral Combs was the Chief of the Bureau of Aeronautics at the finish of my tour of duty. In fact, Admiral Soucek had also come in.

Mr. HOLIFIELD. Who was the Acting Deputy Chief or the Deputy Chief of BuAER during the period?

Captain MURPHY. I couldn't answer that from memory, sir. I would have to refresh my memory on that. I wouldn't be sure about the times.

I went to St. Louis from the Bureau of Aeronautics, and I am afraid my memory would be overlapping, and I wouldn't be clear on which one was there at some particular time without looking it up.

Mr. HOLIFIELD. Will you respond to the same question, Captain Sager?

Captain SAGER. I believe Admiral Soucek was Chief of the Bureau and Admiral Harrison Deputy Assistant Chief when I reported in, and Admiral Soucek retired and Admiral Russell relieved Admiral Soucek and Admiral Cooper relieved Admiral Harrison as Deputy and Assistant.

Mr. HOLIFIELD. And what years did that apply to?

Captain SAGER. I reported into BAR, St. Louis, October 1954 to the present time, sir.

Mr. HOLIFIELD. Thank you, gentlemen.

At this time we will ask Mr. J. S. McDonnell and such members of his organization as have been placed on the witness list to appear.

Mr. HOFFMAN. Mr. Chairman, before you finish with the Navy witnesses—have you finished with the Navy witnesses?

Mr. HOLIFIELD. Do you have any further questions?

Mr. HOFFMAN. I have one, or several questions I wish to ask Lieutenant Commander Smith, who was on this morning.

Mr. HOLIFIELD. Commander Smith, will you please come forward and take the witness chair again. One of our members wishes to ask you questions.

Commander SMITH. Yes, sir.

FURTHER TESTIMONY OF LT. COMDR. NICHOLAS J. SMITH, NAVY TEST PILOT, PERFORMING PRELIMINARY EVALUATION ON F3H PLANES AT ST. LOUIS, MO., MARCH 1954

Mr. HOFFMAN. Did you test other planes that had motors that were manufactured by Westinghouse?

Commander SMITH. Yes.

Mr. HOFFMAN. What were those planes?

Commander SMITH. Specifically the J–34 engine which Admiral Russell mentioned the other day, J–34, all different dashes on that. The actual J–34 engine though, sir.

Mr. HOFFMAN. And what plane was that put in?

Commander SMITH. We are still using that in some aircraft. I believe it would be classified to say which ones; in the Banshee. Pardon me, please, sir, the Banshee and the F3D, the Sky Knight, the Douglas.

Mr. HOFFMAN. And you flew some of those during the war?

Commander SMITH. Not during the war; no, sir; they were brought in about the time of Korea.

Mr. HOFFMAN. About the time of Korea?

Commander SMITH. Yes, sir.

Mr. HOFFMAN. Did you fly some during that trouble?

Commander SMITH. Yes, sir; I flew both of those during that time.

Mr. HOFFMAN. Which ones did you fly?

Commander SMITH. The Banshee and the F3D.

Mr. HOFFMAN. In combat?

Commander SMITH. No, sir; I had another type of airplane I was using then.

Mr. HOFFMAN. What was the performance of those which you flew and which were manufactured by Westinghouse?

Commander SMITH. The J–34 in both aircraft, as Admiral Russell said earlier, was one of the most reliable engines we have had in the jet field.

Mr. HOFFMAN. Was the same engine in both planes that you mentioned?

Commander SMITH. Yes, sir; Westinghouse engine.

Mr. HOFFMAN. And was anything undesirable in connection with those, I mean, were there any defects that you know of, and how would you rate the performance of both planes with that motor or engine?

Commander SMITH. Well, the performance of the airplanes was very good as far as engines are concerned. The engines were very

reliable as far as the performance data on it. We are still using them, and I would rather not go into that at this open hearing, sir.

Mr. HOFFMAN. At that time and subsequent, what was the reputation of the Westinghouse people, and by the way, I might advise you I haven't any stock in Westinghouse, and insofar as I know, I don't use any of their appliances. I may or I may not, but I am not financially or personally interested in it.

Now, what was the reputation of that concern with reference to producing good, reliable, effective motors or engines? I guess you would call them engines.

Commander SMITH. Yes, sir. Well, the Westinghouse engine was very reliable in all respects and had been for the large number that were produced for our airplanes. They had very few deficiencies other than what you might expect in normal operations. The word "reliable" takes in anything you might say about it. It stood up under everything we wanted it to stand up under.

Mr. HOFFMAN. After you testified this morning about bailing out and being in the hospital, of course, when you were in the hospital you knew there were some defects in connection with the engine in the plane you had been testing, or didn't you?

Commander SMITH. Yes, sir.

Mr. HOFFMAN. And you had ample opportunity there in the hospital to review in your own mind what had happened?

Commander SMITH. Yes, sir.

Mr. HOFFMAN. Now, if it had been up to you to throw that contract with Westinghouse and that engine right out the window or to go ahead and attempt to make improvements, correct any defects there were, what would you have done?

Maybe that isn't a good question to ask of you in view of somebody else having the responsibility, but as long as they have been asking you your personal opinion, you should feel free, and I don't think the Navy is inclined to criticize anybody for having an opinion. What would you have done?

Commander SMITH. As was stated before, sir, we were searching for the best in whatever it may be, as strongly as we can for a fighting machine which will keep our people ahead of others.

I would have kept on with the program, the Westinghouse program, personally, with the hope that we would get the engine we want. We wanted the 40–10, and we still needed it badly at that time. I would not have stopped the program at the time I went in.

Mr. HOFFMAN. I think that is all I care to ask of this witness.

Mr. HOLIFIELD. Thank you, Commander Smith, for your further testimony.

Now, we will call Mr. McDonnell and such members of his organization as are inclined to testify. The Navy is invited to stay if they care to hear the testimony.

Mr. HOFFMAN. Mr. Chairman, there were two questions to address to Admiral Russell if he is here.

Mr. HOLIFIELD. Admiral Russell, apparently we are not through with the Navy.

Mr. HOFFMAN. In the admiral's statement it was indicated that there were 60 F3H–1's that cost $154 million. Now, just what items went into that figure and what benefits did the Government receive in return for the payment of that money, if there were any?

Admiral RUSSELL. The figure of $154 million was mentioned in the Secretary of the Navy's statement, I believe in his letter to Senator Johnson. It is pretty hard to separate exactly what goes with the 60 airplanes as what goes against the total of 280.

In my statement I referred to about $510 million for the first 280 airplanes. But assigning $154 million to the first 60 airplanes, I should like to point out that this included the engines about 2 per airframe, it included the airframes themselves, it included the spare parts, and so forth, so we should point out then that the engine cost is in that figure as well as airplane cost; all the spares and the support for the aircraft.

Now, the Congressman has asked what we got for that. I figure that we gained roughly 3 years in time, 2 years certainly, because we could fly the airplane when we did have an airplane engine available to take it into the air.

Now, how you might attach a dollar figure to the test time which we were able to gain in this fashion is rather uncertain. This is probably worth $50 million, maybe more. Maybe some of the company officials could testify to this particular cost. This would be only an estimate, of course.

How you would estimate the value of time gained in the program is very difficult to say. Time, of course, is of the essence in a dynamic field, such as getting high-performance airplanes to the fleet. So I can say in answer to the Congressman's question that what we received back was very briefly a saving of time in this all-weather fighter program.

Mr. HOFFMAN. Was that important?

Admiral RUSSELL. Most important, sir, most important. And also I should like to point out that the cost is everything, certainly I can think of, that can be attributed to those 60 airplanes. It is an outside cost, including the engines.

Mr. HOFFMAN. Then, on page 8 of your statement, there was an estimate of cost of $105 million. What items went into that, and what, if any, benefits did the Government get in return?

Admiral RUSSELL. In my statement, sir, I refer to the J–40 program as such, costing the Government $105 million. In this cost I have a breakdown as follows, and these are estimates, and the figures are not firm.

In casting this total, I get $107 million. We estimate Westinghouse's research and development costs are roughly $27 million. We estimate Westinghouse production at $41½ million. Our termination costs for those materials and things which had been ordered and cut, and so forth, for which we were responsible, Westinghouse was $10 million, and the termination at Ford, which was discussed this morning, was $15 million.

The spare parts which went with these engines we estimate at $13 million, and this gives us a total of $107 million, as against $105 million, which is the round figure I quoted in my talk.

Now, the Congressman asked what could we get for this amount. I should like to point out that we got about 1,200 hours of test time in the F3H–1, which is advanced into the F3H–2 program, roughly 1,200 hours. I think McDonnell actually quotes some 989 in the planes in his custody.

We get 357 hours of very valuable flight-test time in the XF4D. We had the model here yesterday. That is the airplane which set the low-altitude speed record a while back.

We got 153 very valuable flight-test hours in the XA3D. You will remember the larger model, our heavy attack carrier-based airplane, 153 hours of test time in that. In the XF10F, the Grumman experimental fighter, we got 35 flights with these engines. This would be, roughly, some 35–40 hours. So I feel that this is a fair statement as to what the Government was returned, Mr. Congressman.

Mr. HOFFMAN. Just one other question perhaps I should have asked Lieutenant Commander Smith. You may have the information.

After you had trouble with the Westinghouse engine in these planes, did you continue to use that engine in planes taking trips around where pilots were being trained?

Admiral RUSSELL. Right up until July of this year the engine was in use. It was grounded at various and sundry times for minor fixes, but it had got back into the air.

Mr. HOFFMAN. You used it continuously, didn't you? It was flown by pilots who needed training, and you also sent it on errands. For example, didn't you send it up to Westinghouse for parts when you wanted them on special trips?

Admiral RUSSELL. Yes, sir, the airplanes were flown. As I say, there are brief periods of grounding. I believe the figure, out of 17 months, I believe if you add up all the total groundings, it comes to about 5 months. This meant that 12 months we were flying.

Mr. HOFFMAN. It isn't correct to say, then, when there was some trouble with these planes, maybe perhaps after the crash—you didn't ground them and let them stand there?

Admiral RUSSELL. Absolutely not.

Mr. HOFFMAN. You used them right along, didn't you?

Admiral RUSSELL. That's right.

Mr. HOFFMAN. For what, incidental service and training?

Admiral RUSSELL. We went right on with the test program, test and acceptances right up until July of this year, sir.

Mr. HOFFMAN. Endeavoring all the time to have the defects corrected?

Admiral RUSSELL. That is correct, sir.

Mr. HOFFMAN. And trying not to demonstrate the defects but to discover what the defects were by using them?

Admiral RUSSELL. That is correct, sir.

Mr. HOFFMAN. I think that is all.

Admiral RUSSELL. Mr. Chairman, you may remember in my testimony yesterday afternoon I believe I was slightly taken to task for the $15 million termination at Ford. I should like to point out that that $15 million termination at Ford is in my figure of $105 million, in my statement, sir, just to clear the record.

Mr. HOLIFIELD. Admiral Russell, you understand, of course, that in dismissing the witnesses at this time, we are not dismissing the Navy for the balance of the hearing. That you will be called back for executive hearings on the subjects which we have set aside, and there may be testimony come up from the next few witnesses which will also involve other questions, so if it is possible, I would like for you to have your witnesses remain in case some matter comes up that we would like to refer to one of your group for testimony.

Admiral RUSSELL. The Navy witnesses will remain, Mr. Chairman.

Mr. HOLIFIELD. Thank you, Admiral.

Mr. GARMATZ. Admiral, is there any storage charge for these planes now, and how long have they been stored?

Admiral RUSSELL. It is my understanding storage charges were waived. I am not current on this. Are we being charged storage for any planes on the field in St. Louis?

I can't answer at the moment. I can look this up for you, sir.

Mr. HOLIFIELD. You would not take the position that all of this money that has been spent has been spent wisely or for the benefit of the Government?

Admiral RUSSELL. Mr. Chairman, as I brought out in my statement, and recognizing the grave responsibility of those involved at the time, I think the decisions, if I had to make them, would probably be made in the same fashion.

Mr. HOLIFIELD. But the results of your tests were that you had spent $107 million and you have an engine that you can't use; is that not right?

Admiral RUSSELL. Well, no sir. We have an engine now which we are not going to use for the purpose of flying. We have some other uses for it, as I explained, sir.

Mr. HOLIFIELD. The primary purpose of airplane engines is to fly.

Admiral RUSSELL. Is to fly, and these we don't propose to fly any more.

Mr. HOLIFIELD. I see. Then the result of all of your tests, as far as the primary purpose is concerned, has proven to you that you have a product which you cannot use for the primary purpose for which you spent the $107 million?

Admiral RUSSELL. That is not correct, Mr. Chairman. I have just explained what we got for our money.

Mr. HOLIFIELD. I heard your explanation.

Admiral RUSSELL. And this is not enough, of course.

Mr. HOLIFIELD. I am bringing up the other part that you did not explain as also a compensating factor.

Admiral RUSSELL. We would like to have more for our money; yes, sir, we certainly would.

Mr. HOLIFIELD. This committee would like to see you get a better product for your money, too, and that is one of the reasons for this investigation.

Mr. Garmatz?

Mr. GARMATZ. Admiral, did you just say if you had to make the decisions over again, that you would make the same decisions?

Admiral RUSSELL. I said I probably would under the circumstances at the time, sir.

Mr. GARMATZ. The reason I asked that, I think you said yesterday in your statement that you admitted that you had made some mistakes.

Admiral RUSSELL. Hindsight indicates that there were mistakes made, sir. There are mistakes being made just now, too, in my job, sir. We can't be 100 percent correct 100 percent of the time, sir. It is not possible on a job like this.

Mr. HOLIFIELD. One question that I wish to ask of you, and if you can't answer it, if there is anyone present that can answer it, I would like to have it answered.

In the making of the determination to buy this plane, was the independent judgment of the experts in the Bureau of Air the controlling factor, or was there any political influence involved in the decision to build these motors?

Admiral RUSSELL. I can assure you, sir, that there was no political influence. My Bureau doesn't work in that fashion. I have had tours of duty there before, and our judgment is our best engineering judgment in the Bureau. We have no political complex. I am a naval officer.

Mr. HOLIFIELD. In view of some of the rumors that have been spread, I thought it might be well to place that on the record.

Admiral RUSSELL. Thank you, sir.

Mr. HOLIFIELD. That the Navy makes its own decisions and they make it on the basis of what they think is best. If it turns out wrong, it is a mistake, an honest mistake, and it is not a mistake as the result of political influence at any time.

Admiral RUSSELL. That is correct, sir.

Mr. HOLIFIELD. Thank you, sir. Mrs. Griffiths?

Mrs. GRIFFITHS. Admiral, do the $15 million termination charges at Ford include the price of Ford Romulus plant?

Admiral RUSSELL. No, ma'am. That is a naval industrial reserve plant which we have set aside in the event we go to war, we immediately go into production.

We have current plans at all times to produce an engine, the one we most need, at that plant. We have tools to do this. The plant may be used for another purpose temporarily, but it is reserved for our use in an emergency. This is part of our industrial planning for war.

Mrs. GRIFFITHS. Now, I would like to ask a question that is far afield. Does Annapolis have courses in purchasing?

Admiral RUSSELL. It has been a long time, madam, since I have been at school. We had elementary mathematics there.

Mrs. GRIFFITHS. $50 billion would not be encompassed in elementary mathematics.

Admiral RUSSELL. Madam, if it is of any comfort, I have submitted the biographies of my immediate staff, and I should point out that the head of my procurement outfit whom you heard on the stand this morning, Rear Admiral Beardsley, is not only a graduate of the Naval Academy, he is a postgraduate in aeronautic engineering, and he has had the business course in Harvard University, which I believe is the best in the country.

Mr. HOLIFIELD. Mr. Hoffman?

Mr. HOFFMAN. In view of the fact that you were asked a little while ago about the storage cost on these planes, how does that compare with the cost of the storage of surplus farm commodities? I would like to have order, Mr. Chairman.

Mr. HOLIFIELD. The committee will be in order. The gentleman from Michigan has asked a very pertinent question, and I hope that the admiral will be able to answer that.

Mr. HOFFMAN. A cost which was willingly, sometimes enthusiastically provided for by the Congress, the comparative cost. That is the meat of the question between the storage of these planes and the Government surplus products.

Admiral RUSSELL. Mr. Congressman, the witness is not qualified. I am not definitely informed on the price of storage of aircraft?

Mr. HOFFMAN. The best information I can get from the Secretary of Agriculture is it runs something over $1 million a day.

Mr. HOLIFIELD. I would say that we are holding these meetings in the Agriculture Committee room, and that no doubt was a factor in Mr. Hoffman asking that question.

That is all. You are excused.

Mr. MCDONNELL. Mr. Chairman, might I answer Mr. Hoffman's last question?

Mr. HOLIFIELD. Just a minute. Mr. McDonnell, will you and your witnesses come to the stand, please? There have been enough of these questions and answers on a preview basis. From now on we will take it ad lib.

Mr. HOFFMAN. Mr. Chairman, if he has the answer to my question, it would save time if he gave it to me now.

Mr. HOLIFIELD. I suggest that we go back to the order of the committee's business.

Mr. HOFFMAN. Mr. Chairman, the answer which he wants to give was the answer to the question which was asked by the gentleman on your right.

Mr. HOLIFIELD. Would you gentlemen please give your names, and stand?

Do you swear the testimony you are about to give to this committee will be the truth, the whole truth, and nothing but the truth, so help you God?

Mr. MCDONNELL. I do.

Mr. BALDWIN. I do.

Mr. ALDRIDGE. I do.

Mr. MURRAY. I do.

Mr. BRAUN. I do.

Mr. LITTLE. I do.

Mr. HOLIFIELD. Be seated, please. Give your name and position to the reporter.

TESTIMONY OF J. S. McDONNELL, PRESIDENT, McDONNELL AIRCRAFT CORP.; ACCOMPANIED BY J. F. ALDRIDGE, VICE PRESIDENT FOR SALES AND SERVICE; D. P. MURRAY, MANAGER OF CONTRACTS; R. J. BALDWIN, CHIEF SYSTEMS ENGINEER; C. V. BRAUN, SALES ENGINEER; AND ROBERT C. LITTLE, CHIEF TEST PILOT

Mr. MCDONNELL. J. S. McDonnell, president, McDonnell Aircraft Corp.

Mr. HOLIFIELD. Now, Mr. McDonnell, if you have some information to give to Mr. Hoffman in regard to the storage of planes on the McDonnell property, why, I believe it would be pertinent to the proceedings.

Mr. HOFFMAN. Mr. Chairman, the question which he was to answer was, I suggest, asked by Mr. Garmatz on your right there. I didn't ask it, he asked it as to the cost of storage of planes.

Mr. HOLIFIELD. If he has some information on it, I suppose that is the information he was getting read to proffer.

Mr. McDONNELL. The cost, Mr. Chairman, is zero. We have plenty of space and the cost of storage is zero dollars.

Mr. HOLIFIELD. Thank you.

Now, will the rest of you gentlemen give your names and your positions with McDonnell Aircraft?

Mr. ALDRIDGE. I am J. F. Aldridge, vice president for sales and service.

Mr. MURRAY. D. P. Murray, manager of contracts.

Mr. BALDWIN. R. J. Baldwin, chief system engineer.

Mr. LITTLE. R. C. Little, chief test pilot.

Mr. BRAUN. C. V. Braun, sales engineer.

Mr. HOLIFIELD. Do you have a statement?

Mr. McDONNELL. Yes, Mr. Chairman. First I want to say how much our company appreciates this invitation of the committee to appear before it in the committee's search for truth in these complex national defense matters.

Since this is a new experience for both me and our company, and since I have had no training that prepares me for this kind of thing, I have prepared a 10-minute statement. If it please the Chair, I would welcome the opportunity of reading it.

Mr. HOLIFIELD. You may proceed in your own manner, sir. You will be received courteously and given ample opportunity to say anything you wish.

Mr. McDONNELL. In view of the last subject that came up with the previous witnesses here, if I could spend 2 minutes on that before proceeding with the prepared statement——

Mr. HOLIFIELD. I suggest that you give your regular statement and then we will take up extraneous matter. There may be several things that we want to talk about.

Mr. McDONNELL. Very good, sir.

Mr. Chairman and gentlemen of the committee, this Scotsman founded McDonnell Aircraft Corp. and has served continuously as its president and chief executive officer since its small beginning in 1939, and so I take full responsibility for any shortcomings.

Internally in our organization, however, I can assure you that I divide this responsibility among some 14,000 able and hard-working teammates.

During World War II our company engaged primarily in the manufacture of aircraft and parts designed by others. We progressed rapidly to the successful design and quantity production of our own high-performance fighter aircraft for the Navy and the Air Force. Our corporate team is now 1 of the 10 largest manufacturers of military aircraft in the United States.

In addition to fighter planes, we have engaged in helicopter and guided-missile design and manufacture, and this work is successfully continuing.

Our major production today is F–101 Voodoo fighters for the Air Force, and F3H–2N Demon fighters for the Navy. Our backlog of orders from the United States Government now stands near $600 million. I mention that only in that that may be said to represent some measure of the Government's confidence in this creative industrial team.

It is pertinent to point out that the majority of our new contracts have been awarded as the result of winning design competitions

against the best experience and talent in the whole aircraft industry. It is also noteworthy that our company supports its efforts by a substantially larger proportion of risk capital of its own than the average of the entire industry. Our company therefore has an additional incentive to nurture and protect its reputation for excellence in the judgment of the military services.

In March 1945, our company received its first production contract for fighter aircraft, the Navy FH–1 Phantom, which is a carrier-based twin-jet fighter airplane. The Phantom was the first all-jet plane to operate successfully from a United States aircraft carrier, and it had Westinghouse jet engines.

Our next principal model was the Navy F2H Banshee, another carrier-based twin-jet fighter airplane which has had a very successful history and has served the Navy well. The company completed deliveries of the Banshees on schedule in October 1953, at which time over 900 Banshees of all types had been delivered.

The Banshee was also powered with Westinghouse jet engines, the J–34. Our company has used more Westinghouse jet engines than any other company in the world, and in our judgment Westinghouse did a good job on the J–34 engines.

The extensive successful experience with Westinghouse J–34 engines—there are over 5,000 of them in the Banshee, and that includes spares, of course—is important background for the Navy's decision made later to buy the proposed new Westinghouse J–40 engine. It is with the history of F3H–1 Demon airplane program that your committee is concerned today.

In all fairness, in any such backward look at some brief period in the dynamic history of aviation, it is necessary to study in prospective the decisions made by the participants at that particular time.

It must be borne in mind that in the 10 short years from 1945 to 1955 the top speed of production fighters has increased from about 500 miles per hour to about 1,000 miles per hour, an increase exceeding the total increase in speed achieved in the 42 years from the year 1903 to the year 1945.

I could give many other instances of this tremendously rapid rate of evolution in a complex field, but I will not take the committee's time. In the past 10 years we have experienced the fastest rate of evolution in aviation history, and perhaps the fastest rate of military material evolution in the history of the world.

Consider the aircraft manufacturer's problem in designing a new military airplane. He can never use a current proven production engine. He must always select the most promising future projection of an experimental engine that is available to him as Government-furnished equipment. Sometimes there is little freedom in choice. Such was the case with the J–40 engine for the F3H.

Consider also the aircraft manufacturer's problem in developing the airframe. The airframe can be gradually perfected and proven only by extensive flight testing. How is the airplane kept in the air? By the use of jet engines.

When the jet engines are delayed or are unreliable, such as the J–40, the airframe development period likewise is prolonged.

For the military services and the manufacturers of engine and airframes, it is always a spirited and excruciating race against time to

solve enough problems fast enough to produce a successful new combat airplane in quantity before it is made obsolete by a potential enemy.

To save time, production and flight research development must be carried on concurrently. In the development of a new fighter, it is therefore necessary and normal that the first few dozen airplanes be allocated to perfecting the airframe and perfecting the Government-furnished equipment, such as jet engines, radar, fire control system, et cetera.

Mr. HOLIFIELD. Will you stop at that point. I am following your text here, and you changed the word "expended" and used the word "allocated." Did you do that for any particular reason?

Mr. MCDONNELL. For no special reason at all. In glancing at my text again this morning, I thought the words "allocated to" for just two words was more revealing than the word "expended."

Mr. HOLIFIELD. You didn't mean to say then—of course, the word "allocated," set aside for "perfecting" has an altogether different meaning than "expended." Of course, I want you to have the right to use the word that you want to use. So you want the word "expended" taken out in view of its connotation, and the word "allocated" placed in the official record, do you?

Mr. MCDONNELL. The chairman's use of the English language is better than mine. May I change the text to read, "It is therefore necessary and normal that the first few dozen airplanes be allocated to perfecting the airframe," et cetera, and usually some of them are expended.

Mr. HOLIFIELD. Proceed. Thank you.

Mr. MCDONNELL. Thank you, Mr. Chairman. I appreciate your helping me improve the text.

Some of these airplanes so allocated will inevitably turn out to be cripples that will never be combat ready. Nobody can bat 1,000. If you don't believe it, go to any military aircraft plant in the United States at the right time during their production development contract and you will see the cripples sitting around.

Some of the cripples can usually be salvaged by a modification program, but there is only one way that cripples can be eliminated and big economies achieved, and that one way is to slow down the rate of evolution, and if we do this, we increase the danger of falling behind the potential enemies.

Now, against this background let's look specifically at the F3H program. It got underway in 1948 when McDonnell Aircraft Corp., competing with practically all of the military aircraft manufacturers in the United States, won a design competition for a short-range interceptor fighter.

In working upon this competition the company found that the performance the Navy required—I change the word "demanded" to the word "required," if I may—the Navy required for the product could not be obtained with any but the J–40 engine then being developed by Westinghouse.

The fact that at that time there was no real competition in prospect for this engine was a matter of concern to us, but McDonnell's past history of good experience with Westinghouse engines was an encouraging factor.

The XF3H–1 experimental version of this airplane made its initial flight in August of 1951 during the Korean war, utilizing an early

form of the J–40 engine, the J–40–6. The early troubles encountered with the engine were not considered to be seriously out of line.

The early tests of the experimental aircraft indicated that it was a generally satisfactory design quite responsive to operational objectives of the short-range interceptor design competition.

Navy evaluation of fleet needs at this time, that is, after the XF3H–1 airplane had flown, determined a greater need for a medium-range all-weather general purpose fighter as a production follow-on for the XF3H–1 rather than the short-range interceptor which was the original design concept.

Accordingly the airplane was redesigned, I would say substantially, 100 percent redesigned, primarily to carry much more fuel and additional fire power and a new gun-fire control system for all weather operations.

This necessary redesign resulted in an airplane that had substantially the same wing size but a large fuselage and appreciably increased weight. To maintain performance more power was required and the Navy contracted with Westinghouse for production of a more powerful model of the J–40 engine, namely, the J–40–10.

Development problems with the F3H airframe were of a magnitude to be generally expected in a new model, but difficulties with the J–40 engine gradually multiplied until they became a major obstacle.

The J–40 promised date of availability was repeatedly extended into the future, and the guaranteed flight performance of this engine was seriously downgraded. The flight program with the J–40 engine was increasingly hampered by new and recurring reliability problems.

These matters were of continuing and increasing concern to McDonnell management, and early in the F3H–1 program, when it appeared that less than the original specification performance could be counted on from the J–40 engine, our company proposed to the Navy in writing on the 25th of April 1952, the procurement of alternate engines.

The Allison J–71 program which resulted was by no means free of delays and functional difficulties, but a reliable engine with adequate power has been the end result.

I feel that as regards the F3H–1 program, the whole program, that persons concerned in our company and in the United States Navy have labored long and have labored hard and they have labored in good faith under great difficulties in their efforts to achieve urgently needed fleet-ready airplanes.

I feel that the Navy was right on top of the situation all the time. I was the one who was at the receiving end. I think I am in a position to know.

The Navy was intimately acquainted with the continuing difficulties, and step by step the Navy slashed production schedules of the airplane as each major setback arose.

The essential flight-test information gathered in the 1,150 flights, 1,150 flights with the J–40 engines combined with a production line in being, that is, an airframe production line in being, make it most likely possible to commence deliveries to the fleet in the near future of the improved F3H–2N all-weather combat-ready fighter, a superior weapon to fill a real need.

In accordance with your committee's request, Mr. Chairman, McDonnell representatives are present to answer any questions of the

committee to the best of our ability. I will not name our representatives again. Their names have already been given.

I might just mention that our 2 test pilots present, Bob Little and Chet Braun, these 2 pilots between them have made 313 Demon flights with the J–40 engine, plus 52 flights with the J–71 engine.

Each of them have flown this airplane more than any other pilot in the whole world, with the exception of George Mills in St. Louis, who has his leg in a cast and couldn't come, by the permission of the committee. The only instructions I have given my associates——

Mr. HOLIFIELD. Did Mr. Mills have an automobile accident?

Mr. MCDONNELL. He had an automotive accident, Mr. Chairman, ejecting from a Demon fighter.

The only instructions, Mr. Chairman, I have given my associates is tell the truth as they see it, as briefly as they can, because the committee's time is valuable, and we welcome this investigation.

Mr. HOLIFIELD. Thank you.

Mr. MCDONNELL. Thank you, sir.

Mr. HOLIFIELD. Mr. Roback, you have some questions for Mr. McDonnell?

Mr. ROBACK. Mr. McDonnell, you say in your prepared statement on page 2 that the Navy made a decision to buy the Westinghouse J–40. The Navy pointed up the fact, in Admiral Russell's testimony, that McDonnell elected to use the J–40. Now, will you clarify that point so far as you understand it?

Mr. MCDONNELL. Yes, Mr. Roback. Strange as it may seem, both answers are correct, and it comes about as follows:

In a design competition the Navy in the rules for the competition selects the engines that can be used. If an airframe company competing in the competition uses any other engine, why, their entry in the competition can be thrown out. So we are confined to the engines that the Navy selects.

Mr. ROBACK. Did you have a list of engines from which you could have selected alternatives at the time the decision was made?

Mr. MCDONNELL. There were 1 or 2 other engines involved. Maybe my associates can answer. But that isn't really significant. The significant point is that the only engine on that list with which a manufacturer could win that competition was the J–40 engine.

Mr. ROBACK. So far as you were concerned, there was really no real choice in the sense of selecting among alternatives?

Mr. MCDONNELL. That is correct, Mr. Roback, but in all fairness to the Navy, I must add that if I had been selecting the engines to be used in that competition at the time, I would have put the same engines on the list that the Navy put on, because they were all that were available.

Mr. ROBACK. You remarked in your statement the concern of the company about the limited freedom of choice with respect to the J–40. What was your concern, what was your opinion with regard to starting this program by selection of one engine?

Mr. MCDONNELL. I would have far preferred that the engine industry in the United States would have had available at that time at least two alternate engines. That is our preferred practice.

We would rather design an airplane, whether for the Navy or the Air Force, in which there are at least 2 alternate powerplants, and if 1 powerplant development does not come along satisfactorily, that we

can place the other powerplant in it. At this particular time in 1948 no such selection was available.

Mr. ROBACK. Was the limitation on choice expressed in your statement determined by the fact that the Navy selected one manufacturer or because there were no engines available at the time as possibilities?

Mr. MCDONNELL. Simply no engines available.

Mr. HOLIFIELD. I would like to clarify one point. I understood that there were other engines offered and this was chosen from among a group of engines. The Chair is a little bit confused.

This engine was selected and it was elected and it must have been from among a group of engines or potential engines, so let's at this time have someone in your organization tell us if there was or was not any engines in existence at the time, or if there were any engines on the drawing boards, the same as I suppose the J–40 was at that time. Have you someone that can answer that question specifically?

Mr. MCDONNELL. We will do our best to clarify that, Mr. Chairman. I will give part of the answer. Then I will call on Mr. Baldwin to see if he can help with the rest of it.

The engine that is in the F3H–2N now, the Allison J–71 engine, that development followed the J–40 by 1 or 2 years. I can get a more specific figure than that if it would help the committee.

Now, as regards engines available now, another engine was the Pratt and Whitney J–57, but that was not available in 1948, because that engine followed the development of the J–40 also by a couple of years.

Mr. HOLIFIELD. The J–40 wasn't available either, was it?

Mr. MCDONNELL. It was further along than either one of those other engines.

Mr. HOLIFIELD. How far along was it?

Mr. MCDONNELL. Well, I can illustrate that in this way: We were given complete information on the J–40 as regards installation drawings on one-quarter scale as regards the weight of the engine, as regards its rpm, as regards what thrust it would turn out. I don't think our company had even heard of the J–57 then.

We were doing our best to keep on top of everything, and I can guarantee that no such data was available to the aircraft industry on the J–57 at that time or on the J–71 with afterburner at that time.

Now I would like to call on my associate, Mr. Baldwin. Can you name the other engines that were listed in that competition in 1948?

Mr. BALDWIN. No, sir.

Mr. MCDONNELL. Can you name them, Mr. Aldridge?

Mr. ALDRIDGE. No, sir.

Mr. MCDONNELL. It seems to me I remember the Westinghouse J–46 as being in that competition, and we tried a design around it and it was apparent that such a design would not be a winner.

Mr. ROBACK. Mr. McDonnell, perhaps it may help for us to refer to Admiral Russell's testimony previously when the question was raised as to whether there was a freedom of choice, as to whether there were options by the frame manufacturers. He answered as follows:

In this case I am informed by my staff that the choice lay among several, 2 Allisons, J–33A's, 2 different Westinghouse, J–40's, sixes and eights, the J–46, which was a much smaller Westinghouse engine, and under development, the J–47 which was a General Electric turbojet and the J–48 which was a Pratt-Whitney turbojet.

Now, were any of those engines available for selection as an alternative to the J–40?

Mr. McDonnell. If they were listed in the Navy circular for that competition, you can rest assured that the Navy considered them all to be equally available, not necessarily equally available, but they were officially made available for this particular competition.

Now, I must add that these engines are all Government-furnished equipment. The Government buys them from the engine manufacturers and in the competition we are given the list that we are restricted to.

Mr. Holifield. At this time, if you will bear with me, Admiral Russell stood up and I want to give him an opportunity to clarify his statement.

Admiral Russell. The record is wrong, sir. I am sorry, I have been misquoted. The engines offered in that competition are as follows:

There were two Allisons, the J–33–A–27 and –29. There were three Westinghouse engines. The first one, the J–40–WE–6 and the –8. That is two of them; a smaller engine, the J–46–WE–2. There was one General Electric engine, the J–47–GE(H). There was one Pratt and Whitney engine, the J–48–P–2.

Thank you, Mr. Chairman, for the opportunity of correcting the record.

Mr. Holifield. So there were other engines. Now were these engines all on the drawing boards the same as the one that was chosen, or were they in existence at that time, and if they were on the drawing boards, what was the comparative degree of their design, Admiral Russell?

Admiral Russell. These engines were in a state of design which indicated to us that they might be used with this particular design.

As I explained yesterday, sir, we reach out for performance to the best of our judgment, trying to mate the engine with the airframe, so that you get the most advanced product you can get.

Mr. Holifield. All right. Mr. McDonnell has testified that you furnished him a quarter scale drawing for purposes of installation in the airframe. Were any of these other engines in a comparative degree of development where you could have furnished a quarter scale design to him for installation in the frame?

Admiral Russell. I would like to refer the question to my engine assistant, Commander Woodhull.

Commander Woodhull. Yes, sir. As a matter of fact, some of these other engines were probably farther along, but I would like to point out the fact, I will undoubtedly say this influenced McDonnell's decision, the J–33 engine and the J–48's are derivatives of the first turbojet engines made, they are of the centrifugal type which is a larger engine, does not lend itself to high thrust output and high performance, for high performance aircraft of the type of speed they were talking about.

Mr. Holifield. So at this time there were other engines in development but they were of the lower thrust or a lower power commensurate with their size than the projected J–40, is that a fair statement?

Commander Woodhull. Yes, sir. I think in our previous Navy testimony it was pointed out that the J–40 was the only engine under development in its thrust class. It was larger than these others.

Mr. HOLIFIELD. So in effect the Navy picked that engine and said to McDonnell Aircraft, "This is the engine we want in this type of a plane."

Commander WOODHULL. No, sir. I will just say as a matter of general information that Mr. McDonnell mentioned that many other companies participated in this competition and other designers chose to submit other engines than the J–40 with their proposals.

Mr. HOLIFIELD. Out of that group you chose the McDonnell airframe with the Westinghouse J–40 engine as coming nearest to what the Navy wanted.

Commander WOODHULL. That's correct, sir.

Mr. HOLIFIELD. So the election of the McDonnell people to take the J–40 engine was the result of your selection of the J–40 engine rather than their election; was it not?

Commander WOODHULL. No, sir. Our requirements to them, as Mr. McDonnell outlined, and our specification that we sent to them, the very brief specification called an outline specification, it outlines what we want in the airplane, therein we list engines that they can use in any way they see fit, and we had some 5 or 6 engines listed in there.

We have no information to go back and forth with them after that time telling them pick this engine or anything else. Each engine was given equal preference in our listing.

Mr. HOLIFIELD. Did any other aircraft manufacturer choose the J–40 engine?

Commander WOODHULL. Yes, sir. I would prefer not to go into details. Some of this information might be considered of a proprietary nature but I can hit the high spots, I think.

Mr. HOLIFIELD. You don't need to give us any names. Just give us the number of those who bid on the J–40 engine with an airframe, the number of companies.

Commander WOODHULL. Seven companies bid, all of them major companies, and some submitted more than one design.

In all there were 11 designs submitted. These are airframe engine combination designs.

Two designs were submitted, four designs were submitted, six designs were submitted about the J–40. Six designs were submitted around the J–40, and as I pointed out, none of the centrifugal engines were used because the airplane performance required in this specification presumably led the airframe manufacturers to decide they couldn't do the job with the centrifugal engine.

Mr. ROBACK. You are talking about the different engines, you are not talking about airplanes designed for the kind and class we are talking about.

Commander WOODHULL. Yes, sir; seven companies responded to our invitations to meet this high performance interceptor.

Mr. ROBACK. Once the company had a frame design, it didn't have an option as to the engines.

Commander WOODHULL. These were just paper designs they submitted, sir.

Mr. ROBACK. I would like to ask Mr. McDonnell as a practical commonsense proposition, did you figure that you had any option other than the J–40, and if you didn't at the beginning, when did you first do it?

Mr. McDONNELL. That is a good question, Mr. Roback. Our company studied designs with every one of these engines that the Navy had on their list. That is our usual practice in every competition.

We then ran our own evaluation within our company as to which one would be the winner. Then we turned into two different airplane designs. Both of them, however, had the J–40 engine.

If we would have proven to ourselves on paper within our own secret company councils that some other engine would have won that competition, we would have submitted the other engine. Of course, we covered the waterfront and we would in each competition turn in an airplane design with every engine that the Government allows except it is very expensive.

Currently in a competition any competitor who spends less than a quarter of a million dollars on one design doesn't stand a chance of winning that competition, so if you are going to turn in a dozen of them, you can see it gets very expensive. So the manufacturer does his own secret study and the Navy doesn't know what is being done by that manufacturer because these competitions are competitions.

After that initial stage of a few weeks, then after that we do all our work confined to what we think will be the winner.

Mr. ROBACK. If 2 or 3 or more companies had gotten a development contract for an engine of this order of thrust, conceivably you might have had some competition.

Let me rephrase the question. Is the lack of competition with that engine a reflection of the fact that the development contract was let to one company back in 1947, incidentally on the last day of the fiscal year?

Mr. McDONNELL. I would like to be helpful, but I don't know how to answer that one, Mr. Roback.

Mr. ROBACK. You say here the early troubles encountered with the engine were not considered seriously out of line with the expectations at that time. Was that your consideration?

Mr. McDONNELL. I would say that that was the consideration of our company team as a whole at that time.

Mr. ROBACK. Had you made any representation at that time to the Navy or the engine manufacturer that the engine was not in line with expectations?

Mr. McDONNELL. Oh, at the time of that competition we would never have submitted a design with that engine unless we thought, based on the outlook at that time, it had a good chance of being a winner.

Mr. ROBACK. Now you were talking about the first flight of the X model on August 7, 1951, and you said, if I remember this right, at that time there was no serious deviation from expected development of the engine. Is that your understanding?

Mr. McDONNELL. Can you call my attention to the page and paragraph that you are quoting?

Mr. ROBACK. Yes. On page 4, the paragraph before the last one:

> The early troubles encountered with the engine were not considered to be seriously out of line with expectations at that stage of development.

The reference there is about the time the first X model was flown.

Mr. McDONNELL. Now what is your question, Mr. Roback?

Mr. ROBACK. My question is, Was that the consideration by the McDonnell Aircraft Corp. or was that the Navy consideration?

Mr. McDONNELL. Of course, I can answer only for McDonnell Aircraft. I can say that certainly that was the consideration of McDonnell Aircraft.

Mr. ROBACK. What were the contents of the letter that you sent to the Chief of the Bureau of Aeronautics dated July 25, 1951?

Mr. McDONNELL. Shall I read the letter?

Mr. ROBACK. If the information is classified, as you understand it, will you confer with the Navy representatives to see if it can be read?

Mr. McDONNELL. Yes, sir. It is a rather long letter. Would the Chair like for me to summarize it?

The letter as a whole is labeled "confidential," and I will see if I can summarize it without violating security at any point. It is a letter signed by our vice president for engineering. All such letters, however, have the approval of higher management on such important matters.

Mr. ROBACK. Will you summarize that without giving any classified information and then we will consider its submission for the record?

Mr. McDONNELL. Yes, sir.

Mr. ROBACK. If the chairman approves.

Mr. McDONNELL (reading):

The contractor seriously is concerned over the probability that engines would not be available in time to match the estimated delivery schedule of the subject airplane. The engine currently specified is the Westinghouse X–J40–10. The first of these should be delivered to the contactor not later than October 1952 in order that production airplane deliveries will not be delayed. This allows only three months time before scheduled first flight which is believed to be an absolute minimum for a production contract.

I better delete the next sentence or two. The subcommittee has this letter in its file, I am sure.

To meet even this schedule it will be necessary for Westinghouse to complete the development of the engine in about two-thirds of the comparable time that it appears will be required for the –8 engine.

With the full text that is not too revealing.

Therefore it seems probable that some other engine will have to be provided.

The next paragraph lists five possible alternate engines, and that is paragraph 2.

Paragraph 3, there 1 of the alternate engines is considered in detail.

In paragraph 4 another of the alternate engines is considered in detail.

In paragraph 6 a specific engine is recommended.

Mr. ROBACK. Mr. McDonnell, we don't have a copy of that letter. I wish you would confer with the Navy Bureau and find out the state of the classification and we would like to have the letter for our files. We would like to have the unclassified portion of it in the record.

Mr. McDONNELL. Very good. If the Navy security officer passes it, I can hand it to the committee right now.

(The letter referred to contains classified security information, and is being retained in the subcommittee files.)

Mr. ROBACK. Does anything you mentioned in regard to that letter qualify your statement that the early troubles encountered with the engine, speaking around August 1951, were not seriously out of line with expectations?

Mr. McDonnell. I would appreciate if Mr. Roback could repeat the question.

Mr. Roback. You have this statement in your prepared statement, and apparently it refers to the time of the first experimental flight by McDonnell. That development at that time was said to be not seriously out of line with expectations. At about the same time you were concerned with Westinghouse performance delivery; you proposed to the Navy that there be an alternate engine development.

Mr. McDonnell. I think, Mr. Roback, you have made a comparison there. If I had been preparing this text with minute care and I had everybody in our team check out against the detailed record going back for years, I would have changed the statement to read that it was not seriously out of line, but concurrently we thought the program should be protected by doing something about getting an alternate engine underway as insurance for such a big program.

Mr. Roback. These questions are not intended to trip you up on anything you said. We are merely trying to find out what happened. I hope you appreciate that.

Mr. McDonnell. I surely do.

Mr. Holifield. On second thought, why we oftentimes wish to change our statements, and you will be permitted, sir, to change your statement in any way you wish.

Mr. McDonnell. Change it as just previously stated, then.

Mr. Roback. What was the sequence following that letter of July 1951 with regard to your proposal for an alternate engine development? When was the next time in which you communicated to the Bureau regarding such a proposal?

Mr. McDonnell. I will ask Mr. Murray, our manager of contracts, to answer that question, but before he does, for the record and in fairness to the Navy, I wish to say that in this letter of July 25, 1951, our company at that time said:

> Contractor, accordingly recommends that the Navy make suitable arrangements for the procurement of the J–47–21 engine.

That is a General Electric engine. I don't remember the details; apparently at that time the J–71 engine was not far enough along to be solely recommended.

Mr. Roback. My question was not limited to the J–71. I ask when was the second time you made a proposal for an alternate engine source?

Mr. McDonnell. Mr. Murray?

Mr. Murray. In April 1952 we wrote a letter to the Bureau recommending that its J–71 engine be procured as an alternate engine because the J–40–10 was not developing in sufficient time to meet our delivery schedules.

Mr. Roback. Will you undertake to determine with the Navy representatives how much of that letter is classified and indicate to us, not at this time. We have a copy of that letter in the files.

Mr. McDonnell, are you in a position to say what your judgment was with respect to the use of the model of the J–40 engine that went into the airplane as it was coming off the line? It was established over here in the testimony over a period of days. In view of the fact that WE–10 had not materialized and a lesser thrust engine was in process of being produced, what was your reaction to that?

Mr. McDONNELL. Of course, I can answer only for McDonnell Aircraft. I can say that certainly that was the consideration of McDonnell Aircraft.

Mr. ROBACK. What were the contents of the letter that you sent to the Chief of the Bureau of Aeronautics dated July 25, 1951?

Mr. McDONNELL. Shall I read the letter?

Mr. ROBACK. If the information is classified, as you understand it, will you confer with the Navy representatives to see if it can be read?

Mr. McDONNELL. Yes, sir. It is a rather long letter. Would the Chair like for me to summarize it?

The letter as a whole is labeled "confidential," and I will see if I can summarize it without violating security at any point. It is a letter signed by our vice president for engineering. All such letters, however, have the approval of higher management on such important matters.

Mr. ROBACK. Will you summarize that without giving any classified information and then we will consider its submission for the record?

Mr. McDONNELL. Yes, sir.

Mr. ROBACK. If the chairman approves.

Mr. McDONNELL (reading):

The contractor seriously is concerned over the probability that engines would not be available in time to match the estimated delivery schedule of the subject airplane. The engine currently specified is the Westinghouse X–J40–10. The first of these should be delivered to the contactor not later than October 1952 in order that production airplane deliveries will not be delayed. This allows only three months time before scheduled first flight which is believed to be an absolute minimum for a production contract.

I better delete the next sentence or two. The subcommittee has this letter in its file, I am sure.

To meet even this schedule it will be necessary for Westinghouse to complete the development of the engine in about two-thirds of the comparable time that it appears will be required for the –8 engine.

With the full text that is not too revealing.

Therefore it seems probable that some other engine will have to be provided.

The next paragraph lists five possible alternate engines, and that is paragraph 2.

Paragraph 3, there 1 of the alternate engines is considered in detail.

In paragraph 4 another of the alternate engines is considered in detail.

In paragraph 6 a specific engine is recommended.

Mr. ROBACK. Mr. McDonnell, we don't have a copy of that letter. I wish you would confer with the Navy Bureau and find out the state of the classification and we would like to have the letter for our files. We would like to have the unclassified portion of it in the record.

Mr. McDONNELL. Very good. If the Navy security officer passes it, I can hand it to the committee right now.

(The letter referred to contains classified security information, and is being retained in the subcommittee files.)

Mr. ROBACK. Does anything you mentioned in regard to that letter qualify your statement that the early troubles encountered with the engine, speaking around August 1951, were not seriously out of line with expectations?

Mr. McDONNELL. I would appreciate if Mr. Roback could repeat the question.

Mr. ROBACK. You have this statement in your prepared statement, and apparently it refers to the time of the first experimental flight by McDonnell. That development at that time was said to be not seriously out of line with expectations. At about the same time you were concerned with Westinghouse performance delivery; you proposed to the Navy that there be an alternate engine development.

Mr. McDONNELL. I think, Mr. Roback, you have made a comparison there. If I had been preparing this text with minute care and I had everybody in our team check out against the detailed record going back for years, I would have changed the statement to read that it was not seriously out of line, but concurrently we thought the program should be protected by doing something about getting an alternate engine underway as insurance for such a big program.

Mr. ROBACK. These questions are not intended to trip you up on anything you said. We are merely trying to find out what happened. I hope you appreciate that.

Mr. McDONNELL. I surely do.

Mr. HOLIFIELD. On second thought, why we oftentimes wish to change our statements, and you will be permitted, sir, to change your statement in any way you wish.

Mr. McDONNELL. Change it as just previously stated, then.

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In other words, this lesser thrust engine was not the engine for which you submitted the design competition; is that it?

Mr. McDONNELL. If I understand the question right, you wanted to know why since the J–40–10 was not apparently going to develop the power that it should to be in accordance with specifications, you want to know why we compromised in using a less powerful version.

Mr. ROBACK. I think the reason why it was used was explained by the Navy, at least as far as they see it. The question that I have is what was the reaction of McDonnell to the use of that engine?

Mr. McDONNELL. What specific engine, Mr. Roback?

Mr. ROBACK. To the use of the lesser powered engine. I believe in this case it was the WE–8.

Mr. McDONNELL. Very good. The question is now clear.

Mr. ROBACK. Perhaps I should refer you to the letter of April 25, 1952, and ask you to summarize your reaction as then expressed. Are you permitted to read the paragraph No. 2 on page 2 of that letter or the last 2 sentences, as the chairman suggests?

Mr. HOLIFIELD. We are referring now to the last 2 sentences of paragraph 2 on page 2 of the letter of April 25, 1952.

Mr. McDONNELL. There is no security involved there. Would you like the two sentences read?

Mr. HOLIFIELD. Please read it into the record.

Mr. McDONNELL (reading):

> The loss in performance resulting from this substitution—

that is the substitution of the –22 engine for the –10 engine—

> will seriously limit the combat effectiveness of the airplane and result in a disappointingly underpowered combination in comparison to the performance potential of the airframe. For this reason the contractor has again studied the possibilities of installing alternate engines in hopes that an early production effectivity can be established which will more nearly realize the airplane performance potential.

I call attention to the fact that it speaks of the combat effectiveness.

Mr. ROBACK. Did you understand, when you refer to the combat effectiveness, did you have any idea that the WE–22 would be a combat plane? Of course, I mean the engine in the combination.

Mr. McDONNELL. I am unable to project my mind some 3½ years in the past and answer that question.

Mr. HOLIFIELD. Maybe I can clarify that. At the time you were making this, were you making this to carry passengers on a passenger line or for combat use by one of the arms of our national defense?

Mr. McDONNELL. For combat use.

Mr. HOLIFIELD. That answers the question.

Mr. ROBACK. There is a technical question whether the substituted lower thrust engine which was then coming off the Westinghouse line, coming over to McDonnell, whether it was McDonnell's understanding that that plane would ever qualify for combat.

Mr. McDONNELL. I will ask our vice president, Mr. Aldridge, if he can answer that.

Mr. HOLIFIELD. Before he answers that, your testimony and the contents of the letter you read as of April 25, 1952, plainly indicated that you, as the responsible manufacturer of this plane realized that the substitution of this engine would reduce its combat effectiveness.

Mr. McDONNELL. Yes, sir.

Mr. HOLIFIELD. You asked for an alternate engine at that time?

Mr. MCDONNELL. Yes, sir.

Mr. HOLIFIELD. Because of your knowledge of the engineering and of the development of the J–40 engine, –22 engine that was being installed. I believe that is clear, is it not, the position you took at that time?

Mr. MCDONNELL. The position taken in the letter is perfectly clear. I would like to add, if I may, that in the middle of the Korean war which this was, to supply an alternate engine was a terrific problem for the Navy.

Mr. ROBACK. In the course of your statement and particularly on page 3 you have referred rather generally here to a series of casualties, cripples, as you termed them, in the course of developing an airplane. Isn't it a fact that all WE–22's were crippled from the standpoint of combat performance? They were not just bugs in an airplane. That was an engine that couldn't do the job.

Mr. MCDONNELL. No, sir; I would not say that. I would say that the only way to fairly answer that question is to get out the detailed performance with the –22 engine and compare it to all the airplanes in the world that it might have to fight against in combat.

Mr. ROBACK. Under your first contract for 150 airplanes, they started to roll off the line, but they didn't have an engine to go into them; is that right?

Mr. MCDONNELL. No, sir; that is not right. There were always some engines there, but not always enough of them, and in a condition of reliability that would make it sufficiently safe to fly them.

Mr. ROBACK. Your projected delivery schedules were such at the time they started to come off the line that you saw you were going to be short on engines; is that right? I am referring to the first contract.

Mr. MCDONNELL. Can you answer that one, Mr. Murray?

Mr. MURRAY. I believe, sir, you will find that the Navy continually adjusted the delivery schedule to meet its anticipated engine availability, and that as the possibility of engines becoming available diminished, the schedule was also set back to accommodate that engine availability.

Mr. ROBACK. Did there come a time when you anticipated the WE–22 could go into every one of those contract airframes, and I am referring to the first contract?

Mr. MURRAY. Would you repeat the question, sir?

Mr. ROBACK. Did there come a time when you anticipated every one of those 150 airplanes on the first contract could have WE–22's?

Mr. MCDONNELL. No, sir; there was always the possibility that the –10 development might come through.

Quoting from the letter of April 25, 1952, paragraph 6:

> The contractor proposes that all of the airplanes which have been delivered with the J–40 engines installed be retroactively fitted with the J–40–10 engines as soon as sufficient quantities of engines are available.

Mr. ROBACK. No question about your recommendation for a back fit. The letter also points out that the first 150 airplanes would have to carry the WE–22.

Mr. MCDONNELL. We would like to see the spot in the letter.

Mr. HOLIFIELD. Refer to paragraph 2, sir.

Mr. MCDONNELL. The letter seems perfectly clear. The point to which Mr. Roback refers is the part of the letter where we say that it

looks like the best way to proceed would be to equip the first 150 airplanes with the –22 engine, but then turning over to paragraph 6, as soon as the –10 is available, to retrofit them.

Mr. ROBACK. Suppose you didn't have the engines for retrofitting, what was your conception of the use of 150 airplanes with the WE–22's in them?

Mr. MCDONNELL. We are not sufficiently psychic, Mr. Roback, to foresee the future. At the time this letter was written on the 25th of April 1952, we laid all the facts on the line, based on our best judgment, so help us God.

Mr. ROBACK. The Navy discovered a use for training and for other purposes of at least 60 of those airplanes. Did you conceive that they might be used for training and flight test purposes or experience? Did you conceive of that?

Mr. MCDONNELL. The Navy knows much more about that than we do, as regards their needs and the uses and the logistics. This is a very complex situation. If they apply certain airplanes to certain uses, they have to supply spares, they have to train the airframe and engine mechanics. They have to set up an educational program for those mechanics. It is a very complex matter, and the Navy is a better judge of those problems than we are.

Mr. ROBACK. As far as McDonnell is concerned, you had 150 airframes coming off the line, and you were taking any engine that was going to be able to go in them?

Mr. MCDONNELL. No, sir.

Mr. ROBACK. You made a recommendation for the WE–22?

Mr. MCDONNELL. That is not any engine; that was the –22, that was the best alternate engine at that particular time that the time schedule would fit the airframe delivery time schedule.

Mr. BALWAN. Mr. McDonnell, was the F3H at that time, in April 1952, a model of the Demon, which you had submitted for competition back in 1947?

Mr. MCDONNELL. It was not the same airplane.

Mr. BALWAN. It was not the same airplane?

Mr. MCDONNELL. The airplane submitted in the competition in 1948 was a short-range interceptor which was known as the XF3H–1.

Mr. BALWAN. What F3H are we talking about now?

Mr. MCDONNELL. In this letter of April 25, 1952, we are discussing the production of F3H–1 airplane, which was an all-weather, general-purpose fighter, which was substantially 100 percent a redesign of the XF3H–1.

Mr. BALWAN. Are we talking about an all-weather –1N at that time?

Mr. MCDONNELL. Yes, sir.

Mr. BALWAN. It is substantially different from the one you submitted in the competition? Isn't it different with respect to weight even?

Mr. MCDONNELL. That can be stated not in a yes-or-no answer, but in about 60 seconds. As stated in my prepared statement——

Mr. BALWAN. It may not be necessary to answer that. I will ask you this question: Once you submit that competition, and you are awarded a successful contract and proceed in the development, how much control do you have at that point with respect to a change of mission in the plane?

Mr. MCDONNELL. The Navy sets the mission.

Mr. BALWAN. You have no control as to whether this shall be an all-weather interceptor, or a short-range interceptor, or anything like that?

Mr. MCDONNELL. The final decision is obviously up to the buyer; namely, the Government. On the other hand, we found that the Navy at all times gives careful consideration to data and information which we supply to try to be helpful.

Mr. BALWAN. That is understood, Mr. McDonnell. The only point I am trying to bring out is that there are factors in this that are beyond McDonnell's control, both in respect to the mission, and sometimes even that which is related to the engine, and, in this case, did McDonnell contract with Westinghouse for the engines?

Mr. MCDONNELL. No, sir; the engines are Government-furnished equipment. That means that the Government buys the engines direct from the engine manufacturer.

Mr. BALWAN. You have to take what is supplied to you?

Mr. MCDONNELL. If we feel that the Government is supplying certain Government-furnished equipment which is not satisfactory for our airframe, considering the mission which the Government has specified, I feel it is our duty to clearly point that out to the customer, and we have always tried to do it. But the final decision is up to the customer.

Mr. BALWAN. And you felt you did that in April 1952?

Mr. MCDONNELL. Yes.

Mr. BALWAN. You felt you did it strongly enough?

Mr. MCDONNELL. Yes, sir.

Mr. BALWAN. You think you had all the power that is needed to handle a situation such as this to protect the Government against putting up a plane of your design where you have no control over the engine?

Mr. MCDONNELL. Mr. Balwan, be good enough to state the question in a slightly different way, and then I may be able to grasp it better.

Mr. HOLIFIELD. Try your hand in stating the question in a more acceptable form to the witness.

Mr. BALWAN. I am saying: Does the contractor feel he is in a strong enough position to protect the interests of the Government with respect to what he can say about the engine?

Mr. MCDONNELL. That is a question that, in fairness to the Government, I will answer in this way. If the Government gave each airframe contractor the specific kind of engine that each asked for, when one type of engine is successful, all the airframe manufacturers want it, there wouldn't be enough of them available, and it would put the other engine manufacturers out of business, and so the Navy and the Air Force always have the problem of being the referee in dividing up these engines, and I would say in general the Government has been fair to our company in that respect, considering all the other problems they have all around the country going on concurrently.

Mr. BALWAN. Mr. Chairman, I don't think the answer assists the committee at all in any kind of recommendation we want to make in the report.

Mr. HOLIFIELD. Mr. McDonnell, let me try my hand at the question. Your letter of April 25 was a letter based on the best engineering and best ability apparently of which your company was possessed, and we

all recognize that you are the head of a very fine company and that you have built some very fine machines for the Defense Department. In your letter of April 25 you notified the Government, in this instance the Navy, that in your opinion the substitution of this engine would result in a lessened combat effectiveness for this plane, this combat plane, the plane which your company's reputation was involved in, and in which some $200 million of the taxpayers' money was involved in, and you, acting in good conscience and in good practice, notified the proper department of the Government that you were dealing with, that this plane would not meet specifications and therefore would not be the type of plane which you and the Navy both hoped that it would be.

Now the question of Mr. Balwan was: Do you feel that under such conditions you have had enough of a say in the overall product to protect the United States Government and the taxpayers from a waste of money, or an unnecessary expenditure of money, and also to protect the reputation of your company against this apparent mistake which has caused a great deal of comment in the press of the Nation?

Do you feel that—maybe you want to say that this is the Navy's responsibility. Maybe you want to say you are working for them. I don't want to put words in your mouth. But the question I think is: Do you feel you should have more authority or less authority in cases like this?

Mr. McDONNELL. Mr. Chairman, you have made the question very clear. I would say that if you want to put the airframe manufacturers in the driver's seat in the Nation and give us full power to buy our own engines direct from the engine manufacturer, that an individual airframe manufacturer might make out better in a given single instance. On the other hand, it most likely would clobber up the national-defense program.

Mr. HOLIFIELD. In other words, there are advantages and disadvantages both ways?

Mr. McDONNELL. Yes. You see, when we wrote this letter, examined the problem which the Navy had, there were other airplanes using the J–40 engine. Ours was not the only one. Some of the finest airframe companies in the country were using the J–40 engine. There was a lot of taxpayers' money involved in it. If the Navy was going to let one airframe manufacturer, namely, McDonnell Aircraft, dispense with the J–40 engine and go to the J–71 engine, that meant that others would want to do the same.

Mr. HOLIFIELD. If this was for the benefit of the Nation in getting the better combination of machine there, would this have been a bad result?

Mr. McDONNELL. The problem was you cannot buy J–71 engines off the shelf. As to the J–71 engine at that time, they had no engine yet with afterburner which had already passed a 150-hour qualification test. They only passed that test this past summer, after 2 or 3 years of work. The Navy had the problem of evaluating this April 1952 situation exactly where the physical J–40 engine stood, and the ability of Westinghouse Co., who were making great efforts at that time to work their way out of their troubles, versus the ability of the Allison Co. to suitably develop the J–71 engine with afterburner in a given period of time.

To actually activate Allison didn't take chickenfeed. I have not kept up with the detailed figures because that was Government business. I imagine this Allison program has been at least a $50 million program. You can see the cost to the taxpayer if the Navy would likely cancel out one multi-hundred-million-dollar program like Westinghouse and jump immediately to another multi-hundred-million-dollar program with another engine manufacturer before the second engine manufacturer had proved that his engine could pass the 150-hour qualification test.

I think the Navy acted with balanced good judgment in handling that very difficult problem in trying to get maximum value out of each taxpayer's dollar.

Mr. HOLIFIELD. Mr. Balwan.

Mr. BALWAN. Is it correct, then, to characterize your feeling as being satisfied with the method the Navy was using in procuring planes at that time insofar as the contractor controlling the situation is concerned?

Mr. MCDONNELL. The contractor never has complete control of a situation in which over 50 percent of the total value of the airplane ready for combat is in Government-furnished equipment. It is a matter of teamwork, and I would say that the Navy gave our company good teamwork and we certainly did our best to give them good teamwork.

Mr. BALWAN. All I am trying to drive at is: are there any recommendations which you might have which might improve the method by which the Navy is buying airplanes through a contractor or an airframe manufacturer who has to rely on as many outside contractors, as you imply, for Government-furnished equipment?

Mr. MCDONALD. If you want to let the airframe manufacturers dominate the situation as compared to the engine manufacturers and the radar manufacturers and the firepower manufacturers, the easy way for the Government to do that is to have the Government make contracts with the airframe manufacturer for the complete combat airplane with everything that goes into combat, and then let it be the responsibility of that airframe manufacturer to make all of his arrangements with the engine manufacturer, with the radar manufacturer, the radio manufacturer, and so forth. But that might turn out to be a worse situation than this.

If I knew that that would be superior, I would recommend it to the committee. I cannot at this point recommend it to the committee. It is a simpler, more straightforward situation as viewed from the viewpoint of the airframe manufacturer, but the engine companies will not like it. The radar companies will not like it, and so forth. I think the present situation represents a reasonably good compromise between all of these factors.

Mr. HOLIFIELD. Mr. Balwan.

Mr. BALWAN. I take it, then, in your words you would not recommend such a situation where each manufacturer took control of a plane in greater form than exists, or existed at least in the past 3 or 4 years.

Mr. Chairman, in February of 1955 before the Hébert subcommittee of the Armed Services Committee the Navy airplane procurement program was under investigation and although this particular plane

was hardly mentioned in that and it was only generally covered, Secretary Thomas testified and left with the committee an unclassified version of the statement regarding the Navy air procurement program before the special investigating committee on February 4 in describing the FIRM program, and Secretary Thomas said:

FIRM, we believe, is a sound, efficient method of development, procurement, and introduction of naval aircraft. It calls for:

(*a*) A low rate of production of a new plane in the first 3 years, with all production planes going immediately into the test program. Fleet delivery of planes is withheld until the entire test work on a new model is virtually completed and discrepancies and changes required as a result of tests have been made on the production line. Thus, when planes are delivered to operational squadrons they are as nearly combat ready as possible and will require no major "fixes" in the field.

(*b*) A program in which various types of complex equipment will be produced on a "pilot line" production basis before they are selected for a specific aircraft installation. Attention is also being given to the matter of alternate or "backup" installations so that when serious developmental problems are encountered, a comparable item can be substituted without seriously retarding airplane schedules.

(*c*) The airframe manufacturer is being given increased responsibility for system coordination. It will be his responsibility to integrate and correlate the various related components, furnished either by the Government or the contractor, into a completely coordinated system. This procedure is particularly applicable to armament fire control, where it is necessary to integrate radar, instrumentation, and flight controls.

Would you say that what you have said about recommending more power is not in line with what the Navy Secretary is saying ought to be done, or is there something that I am reading into this that ought not to be read into it?

Mr. McDonnell. If I could be given the full question, I believe I could do a better job of answering that.

Mr. Balwan. May I rephrase the question. Mr. McDonnell, you have testified it would not be desirable to let the airframe manufacturers take over in the manufacture and provision of planes to the Navy. The Navy Secretary in February was unhappy about the old system with which you say we probably ought to go along, but we ought to do what I was inferring, namely, give more power to the airframe manufacturer to coordinate the system, the whole plane.

I just wanted to have your comment on this thing, how you felt about FIRM, or would you say that we are doing exactly that now?

Mr. McDonnell. Mr. Balwan, I don't feel able to comment on Mr. Secretary Thomas' statement without seeing his full statement, but you have made your question clear, and that is, obviously, that any airframe manufacturer would like to be given more power, would take on more power every year, and get staffed up with additional experts and staff in these various fields, and we would, of course, like to have full power over the whole situation. That is just human. I think any step in that direction should be taken gradually by the Government. The Government should be very careful about it.

Maybe as one individual airframe manufacturer demonstrated that he had full control of the situation and could, say, supply his own equipment in a field that had previously been Government-furnished equipment, then let that airframe manufacturer in his next supply contract take over that little sector and another little sector, step by step by step, but anything done along that line, for the good of the country, should be a conservative step-by-step approach.

Mr. BALWAN. Is there anything different in the procurement program that you have noticed in dealing with the Navy going on now as compared with what went on in the past?

Mr. MCDONNELL. I would say that there has been a considerable evolution in the whole complex system of procurement, and I will have to call on our manager of contracts for help in that respect.

I believe that in recent contracts we have been given responsibility for certain of the combat equipment that is carried by the airframe that was previously Government-furnished equipment.

Mr. BALWAN. Does that mean engines, too?

Mr. MCDONNELL. Oh, no, not the engines.

Mr. BALWAN. The situation is the same with respect to engines?

Mr. MCDONNELL. Yes, sir.

Mr. HOLIFIELD. Is it the same with respect to rockets and other fire power equipment?

Mr. MCDONNELL. No, sir; I would say that this evolution, of which I have spoken, which I would have to check a lot of detail on, I would say that the area that you have just mentioned, that that evolution is taking place there at present.

Mr. HOLIFIELD. That the airframe people are buying fire power now?

Mr. MCDONNELL. It isn't a matter of being on one side of the fence or the other. There are a great many graduations in between. Maybe I can get Mr. Murray or Mr. Aldridge to mention one of them. Can you mention a couple of these gradations in which the airframe manufacturer takes more responsibility without the equipment clear cut becoming contractor-furnished equipment as compared to Government-furnished equipment?

Mr. MURRAY. The area of additional responsibility that the airframe manufacturers are undertaking is one principally of more coordination of all the equipment going into the finished airplane.

Mr. BALWAN. Does that imply there was less coordination in the past?

Mr. MURRAY. No, sir; not so much as it implies that the present complexity just requires this additional coordination.

Mr. MCDONNELL. I believe that Mr. Baldwin, our Chief Systems Engineer, might be able to throw a little light on that. Are you prepared this afternoon to do that or do you think maybe you could do better by the committee tomorrow afternoon?

Mr. BALDWIN. In general terms, I could cover some of those things that might be sufficient for the committee. The tendency is to give the airframe contractors more responsibility in the coordination of complex electronic and other systems in the airplane, and in the writing of specifications for fire control and autopilots and other such systems and in the actual coordination of the development. In some cases on our newer airplanes we are furnishing things such as autopilots as CFE, which had previously been furnished as GFE.

Mr. MCDONNELL. CFE stands for contractor-furnished equipment.

Mr. BALDWIN. So I think there has very definitely been a trend in that direction recently. This has not included, so far, engines.

Mr. HOLIFIELD. Has it included fire control?

Mr. BALDWIN. Certain parts of fire power.

Mr. HOLIFIELD. Electronic wiring and so forth?

Mr. BALDWIN. Yes.

Mr. HOLIFIELD. You have already testified that it does not include the engine?

Mr. BALDWIN. It does not.

Mr. HOLIFIELD. It doesn't include the fire power except for the electronic wiring. The other question was the radar equipment.

Mr. BALDWIN. We have on our Air Force contracts furnished radar as CFE. We have had a much more active participation in the development of the Navy radar, but it hasn't actually gone into CFE.

Mr. HOLIFIELD. Mr. Garmatz has a question.

Mr. GARMATZ. Mr. McDonnell, in this letter you spoke about before, may I call it a letter of complaint, about not having engines that could produce, whom did you send that letter to and when?

Mr. MCDONNELL. The date is the 25th of April 1952. It was not a letter of complaint, if you will pardon me, but an informative letter.

Mr. GARMATZ. Yes.

Mr. MCDONNELL. It is addressed, as all of our correspondence is addressed, to the Chief of the Bureau of Aeronautics, Department of the Navy, Washington 25, D. C. Then it is addressed attention AC–2. That little line on attention calls it to the attention of a specific department of the Bureau of Aeronautics.

Mr. GARMATZ. Did you ever receive an answer to that letter or was there any action taken? If so, how long a time between it?

Mr. MCDONNELL. Mr. Murray.

Mr. GARMATZ. Two weeks, 6 weeks, 8 months, or what?

Mr. MURRAY. I don't believe we received an official reply to this letter, although I am not certain on that point.

Mr. MCDONNELL. Mr. Aldridge has a reply here.

Mr. GARMATZ. You mean the letter was not important enough to receive a reply?

Mr. MCDONNELL. Regardless of whether there is a written letter in the file, a great many things get done verbally and you can rest assured that there was an active discussion of the matter between the Navy and our company, and maybe Mr. Aldridge——

Mr. GARMATZ. How soon after the letter was written?

Mr. MCDONNELL. I would say practically forthwith.

Mr. GARMATZ. Forth when?

Mr. MCDONNELL. You see, Mr. Garmatz, there is stationed in our plant the BAR, the Bureau of Aeronautics Representative, and there are 84 other employees of the Government in the plant. They are right on top of us all the time. That is why I can say these things are practically continuous.

Mr. GARMATZ. When was any action taken to help you correct these things you complained about?

Mr. HOLIFIELD. Has the other witness found any written reply?

Mr. ALDRIDGE. Yes, sir.

Mr. HOLIFIELD. What was the date?

Mr. ALDRIDGE. We received a reply from BuAer on June 19, 1952.

Mr. GARMATZ. That is over 3 months.

Mr. ROBACK. What was the substance of the reply?

Mr. ALDRIDGE. This again is a classified letter.

Mr. ROBACK. May I frame the question differently?

Mr. GARMATZ. April 25 it was sent, and you received an answer when?

Mr. ALDRIDGE. The letter from BuAer was dated June 19, 1952.

Mr. GARMATZ. The mail was a little slow.

Mr. ROBACK. Did that letter in June reflect the response by the Navy that they would select an alternate engine as recommended by McDonnell?

Mr. ALDRIDGE. In essence the letter said what Mr. McDonnell said a short while ago, that the prohibitive cost of instituting a brandnew engine program overrode the other considerations and basically the Navy was going to stick to the program of getting as few airplanes as possible with a derated engine and retrofit them when a fully rated engine was available.

Mr. ROBACK. Then did McDonnell undertake to persuade the Navy to change its mind?

Mr. ALDRIDGE. Yes, we did.

Mr. ROBACK. Did the Navy, on or about November 1952, agree to accept the recommendation which was specifically made with regard to J–71 in April of 1952 and for any alternate engine as early as July 1951?

Mr. ALDRIDGE. Yes, sir; that is approximately the correct date. That is my recollection.

Mr. ROBACK. And do you recollect when the Navy authorized the institution, or the substitution, I should say, of the J–71?

Mr. ALDRIDGE. I can't give you that date, sir, because, of course, that was a direct contract from the Navy to the Allison division of General Motors.

Mr. ROBACK. But at least it was a year and a half difference betwen your proposal for an alternate engine and the go-ahead?

Mr. MCDONNELL. No, sir; we can come lots closer than that. Mr. Murray, you must have soomething that you can dig up the exact date from.

Mr. ROBACK. Let's date it from July 1951.

Mr. MCDONNELL. If we can't supply it from what meager records we brought with us, not knowing in advance what specific questions the committee was going to ask, if we can't take care of it today, we can certainly have it for you tomorrow. I can say this, that a lot of things get done informally that the paper record, looked at in restrospect, does not necessarily show. The Allison Co., sizing up the situation, started working on that engine at their own risk long before official paperwork, which obviously takes longer, came through.

Mr. ROBACK. Mr. McDonnell, have you ever heard of this plan that Mr. Balwan mentioned, FIRM, standing for fleet introduction of replacement models? Have you ever heard that designation before?

Mr. MCDONNELL. I have heard of it, but I am not an expert on it.

Mr. ROBACK. Do you have any idea of what the components of that plan are?

Mr. MCDONNELL. I will have to refer that to my associates, Messrs. Murray and Aldridge.

Mr. ROBACK. Have any representations been made to you by the Navy that a new plan was contemplated in dealing with aircraft contracts?

Mr. MURRAY. Yes, sir.

Mr. ROBACK. When was that communication made?

Mr. MURRAY. We received notification of the FIRM plan sometime within the last 6 months, I am sure, possibly a little longer.

Mr. ROBACK. Does that notification give direction for change of procedure? Do you have specific changes of procedure following from that plan?

Mr. MCDONNELL. No, sir; it does not require any changes of procedure on our part. It is more a change in the rate of delivery of airplanes being procured under that plan.

Mr. ROBACK. Mr. McDonnell, you have expressed the view in your paper that the airframe manufacturer has a problem in dealing with engine designs that are not proven, and also that any bold, progressive development requires a number of casualties, whether they be engines or airplanes. Now, what is your judgment with respect to a policy by the Navy which does not have an airplane until it is proven? In the vernacular that is the "fly before you buy" policy. Perhaps you have seen references to it in the newspapers.

Mr. MCDONNELL. The two things are not inconsistent in order to proceed fast enough, because it is a matter to see that the contract is let for the new airplane, but for deliveries that will be very slow at the start. For instance, for a certain type of plane that I can visualize as an example, and I could be much more specific except for security, the first one will fly say in 30 months. We will call them the next month for zero additional planes, the next month after that one airplane. The next month after that zero. The next month after that 1, and then the monthly rate of flying might be 1, 1, 1, 1, 2, 2, 2, until you build up to about 18 months. So that allows about 18 months from the first fly date to size up the situation concerning that airplane, and if it looks like a real winner, then the manufacturer from that point on is in a position to step up deliveries quite rapidly, and if it is a bust, the Navy can terminate without the cost being as large as if the deliveries were heavy from the start.

Mr. ROBACK. What difference would that have made in your participation in the program we are talking about?

Mr. MCDONNELL. In the F3H program?

Mr. ROBACK. Yes.

Mr. MCDONNELL. Deliveries would have been roughly on the order that I just gave the illustration of.

Mr. ROBACK. In other words, you would not have had an airframe contract?

Mr. MCDONNELL. Yes; we would have had——

Mr. ROBACK. When would you have gotten a production contract under this program if it were in effect along the lines we are talking about, the so-called FIRM policy?

When would you have gotten a production contract for F3H airframes?

Mr. MCDONNELL. I would say we would have gotten it at the same time that we did get it, but that the delivery rates would be more in accordance with those production developments, monthly delivery rates that I just previously mentioned. Our company right now has one such contract executed with the Navy, not long ago, which is classified information. That illustrates this new system.

Mr. ROBACK. You have in mind something with regard to the period over which these production deliveries were scheduled and the effort in getting the production item out from the enginemaker. Can you give us some idea of the increase in the cost of the airplane that it would have if it were proceeding on the basis of a concurrent delivery

schedule, taking as the point of departure, the actual delivery schedule of the J–40 engine?

Mr. McDonnell. In other words, you are asking if the new procurement system had been in effect on the F3H–1 and the F3H–2 series, how much money would have been saved as compared to the contractual system that actually was used?

Mr. Roback. I would say how much would have been saved, or how much would it have cost additionally.

Mr. McDonnell. My guess would be that it would have saved a lot of money. I can't say offhand how much.

Mr. Roback. In other words, you had a contract for 150 planes—when was the first contract? You had a contract for the first 150 planes and if the engines were not suitable and were not delivered for 2 or 3 more years, you would have spread that contract over the space of those 2 years.

Mr. McDonnell. If I understand correctly, that is right.

Mr. Roback. You had your first airframe contract in March of 1951; what additional cost would have been entailed if you had geared your delivery rate on those 150, without getting any other contracts, with relation to this engine?

Mr. McDonnell. I believe, if I understand the question correctly, Mr. Roback, that would have saved money, but I want to point out that it wouldn't have provided airplanes for the Korean war, which was the background against which the Government was procuring aircraft at that time.

Mr. Roback. What money would it have saved? You would have been tooled up for production. We are talking about this contract. You may have gotten some other business from some other source, but you had 150 airplanes to deliver over a space of several years, and you were tooled up for production. Where would the money be saved? You mean the Government would save money by not buying airplanes; is that the idea?

Mr. McDonnell. The saving of the money would have been in the type of procurement system that the Navy has applied in our last few airplane contracts with them as compared to the system that was used on the XF3H–1, the F3H–1, and the F3H–2 system. The saving would have been in tooling cost, and the saving would have been in airframe cost, the saving would have been in the cost of all GFE. That is, of all GFE that couldn't be used on some other airplanes.

Mr. Holifield. Mr. McDonnell, I think the point we want to bring out here for the record is this, that the FIRM plan would undoubtedly save money, because you would be sure of your research and development and that you have a good product, but there will be of necessity a delay in getting your finished product or, in other words, in starting your real mass production of that item as a result of this. In other words, you are trading delay in delivery of a production model for money saved during the production period; is that not clearly stating it?

Mr. McDonnell. That is clearly stating it, but it is not the whole story.

Mr. Holifield. But is it possible, if we adopt the FIRM plan—and I am not taking a position on it one way or the other—if we adopt that and have the planes come one at a time over a period of 18 months

and during that time indulge in the testing that is necessary, in the testing of improved models, as you go along, it will, of necessity, delay the mass production of the finished article. You will save some money during that period, but you would have lost some time; is that not true?

Mr. McDONNELL. You will save money. You will have it fully developed as a combat airplane in a length of time which is no greater, but you will not have large quantities of them at that time.

Mr. HOLIFIELD. And also if it does prove out during that period of research and development, that the item is not a good item, you can chop it off without the commitment of the Government to many hundreds of millions of dollars in contracts and the necessary expense of termination.

Mr. McDONNELL. Yes, sir. That is a very good statement of it.

Mr. HOLIFIELD. In times of war, such as the Korean war, as a matter of calculated risk, as I understand the testimony, you did go ahead on this because of the expected need for planes. The fact that the Korean war terminated before any production was obtained was incidental, of course. If it had continued, you would have had a plane that you could have flown even though it would have been an underpowered one, as compared with the specifications which the Navy had hoped to have in the way of performance.

Mr. McDONNELL. Yes, sir. This F3H–2N Demon with the J–71 engine could probably blast out of the skies any airplanes that fought in the Korean war on either side. Equipped with the J–40–22 engine, if that engine had turned out to be a reliable engine, it could probably have done the same thing, but——

Mr. HOLIFIELD. But as a matter of fact, none of them were produced in time to use in the Korean war; is that not true? The Korean war was through before you had any of those to use. They were not available for use, were they?

Mr. McDONNELL. We had made several hundred flights before the Korean war was over. If you say it was over at the time of the final armistice in 1953——

Mr. HOLIFIELD. None of these planes actually got into the war theater.

Mr. McDONNELL. No Demon airplane got into the war theater.

Mr. HOLIFIELD. For combat missions.

Mr. McDONNELL. No, sir.

Mr. ROBACK. Do you care to make any comment with respect to the F3H–2N? I am talking now about it in terms of its reliability, performance. Those type of comments are classified?

Mr. McDONNELL. Yes, Mr. Roback. I just made one overall comment. Going beyond that, I would like to quote from my prepared statement:

> The essential flight-test information gathered in the 1,150 flights with the J–40 engines combined with a production line in being make it most likely possible to commence deliveries to the fleet in the near future of the improved F3H–2N all-weather combat-ready fighter, a superior weapon to fill a real need.

I would like to state more, but security in an open session will not permit.

Mr. ROBACK. We will discuss this further with the Navy in executive session. I have just 1 or 2 more questions, Mr. Chairman.

Mr. HOLIFIELD. Proceed, because we are getting close to the time of adjournment.

Mr. ROBACK. You have a reference here to the original specifications. This is on page 5 of your statement. You say:

> Less than the original specification performance could be anticipated.

Was there any doubt of that in your mind, when a lesser rated engine was being delivered, or was that something that was unexpected? What I am trying to distinguish here is: Did you understand that the lesser rated engine was not coming up to the specifications for which it was rated?

Mr. MCDONNELL. Three years later I just can't figure exactly what was in our minds at that time.

Mr. ALDRIDGE. Maybe I can clarify it. We never had any doubt that the J–40–WE–22 would meet the specifications for the J–40–WE–22.

Mr. ROBACK. That it would not meet them?

Mr. ALDRIDGE. That it would not meet them. It came up to its specification as far as thrust is concerned.

Mr. ROBACK. You say you were sure it would not meet them?

Mr. ALDRIDGE. Wait. I beg your pardon. You put a word in my mouth.

Mr. HOLIFIELD. Will you please restate your statement?

Mr. ALDRIDGE. Let me restate my answer.

Mr. MCDONNELL. I think I can save the committee's time. What Mr. Aldridge, I think, is trying to say as regards simply getting the thrust out of the engine in an airplane that didn't weigh too much, that he individually had considerable confidence along that line, but as regards the reliability of the engine, so you could count on it, that is an entirely different thing, and at no time throughout the last 2 or 3 years has our company and its pilots had confidence in the reliability of that engine.

Mr. ROBACK. When you say that the engine was not reliable, then you are referring to the engine of which you understood the power was insufficient for the original design of the all-purpose fighter plane?

Mr. ALDRIDGE. We never received a full-powered J–40 engine.

Mr. ROBACK. You knew you were never getting one; isn't that right? Did you have any doubt as to whether you were getting an underpowered engine or not?

Mr. MCDONNELL. I believed I could save the committees' time on that one.

Mr. HOLIFIELD. Let's have the question clearly stated, please, by counsel, and give someone a chance to answer it, to whom the question was addressed, so we can have order in our record.

Mr. ROBACK. I will be glad to restate the question.

Mr. HOLIFIELD. State it affirmatively and as clearly as possible.

Mr. ROBACK. Did the McDonnell Aircraft Corp. believe at any time that there was being delivered to it an engine around which the airplane had been designed after the change of the Navy's mission?

Mr. MCDONNELL. Stated in that way, it cannot be answered yes or no, with all due respect to the committee. If the committee will permit, I would like to give the answer in a slightly different way. Here is a time-flow chart. It starts in August of 1951 and it goes

through August of 1955. In this there are 101 numbers. Each number refers to some trouble item on the J–40 engines, that we specifically took up with either Westinghouse or with the Navy, either by letter or by written report or by a telephone conversation on which some kind of a report was kept, or by verbal conversation on which some kind of a record was kept. We were trying to be on top of the situation all the time. It is my humble judgment the Navy was on top of the situation all the time. It is my humble judgment that Westinghouse was working as hard as they could within their human and corporate limitations. But it is a flowing situation as shown by the letter of April 25, 1952, because we felt that program was so important to the Navy and the national defense that it should be insured by an alternate engine. If there had been an alternate engine that everybody was postive about at that time, I am sure the Navy would have changed it to that engine if it were available.

But you see the J–40 situation was being nursed along to try to get a good engine out of it. Concurrently later the J–71 engine situation was nursed along to try to get a good engine out of it. It was over 2 years after the Navy activated Allison before Allison's engine passed the 150-hour test.

Mr. ROBACK. When you received the –22 and –22–A engines, did you understand they were of a lesser performance than the WE–10, of a lesser rated performance?

Mr. ALDRIDGE. Yes, sir. We had the specifications for the J–40–WE–22.

Mr. ROBACK. What was the flow situation about an engine that you knew was lower than the one you intended?

Mr. ALDRIDGE. What was the what situation?

Mr. ROBACK. Mr. McDonnell said it was a kind of a flow situation in which you couldn't pinpoint the thing. Isn't it a fact that you knew you were receiving an engine which was rated lower than the engine you were supposed to get to properly fly this airplane? Is there any question in your mind, and if there is, merely state so, and then we will leave it go.

Mr. HOLIFIELD. I think this is a fair question that counsel has asked. I think it is one that could be responded to with a yes or no answer.

Mr. ROBACK. If there is a doubt, let it be recorded.

Mr. MCDONNELL. Mr. Chairman, with all due respect to this fine committee and its counsel, the witnesses here—we can bring additional witnesses from St. Louis that can go into this thing more—are not skilled in the fine nuances of the English language. They are reared as engineers and the questions are so long and complex that we are doing our best to be helpful.

Mr. HOLIFIELD. We have no complaints about the witnesses' responses.

Mr. HOFFMAN. May I be heard on that question?

Mr. HOLIFIELD. We have no complaint. We are working with you on this. We are trying to clarify our questions.

Mr. HOFFMAN. May I be heard on the question itself?

Mr. HOLIFIELD. Which question? The last one?

Mr. HOFFMAN. Yes, sir.

Mr. HOLIFIELD. Will you restate the question?

Mr. HOFFMAN. I understand the question, I think. As I understand that question, it assumes that the situation remained the same all the time. As I read the statement here, the original plans called for an interceptor plane, equipped in a certain way with a certain engine.

Mr. MCDONNELL. Yes, sir.

Mr. HOFFMAN. Then the plans changed and they wanted an all-weather fighter.

Mr. MCDONNELL. Yes, sir.

Mr. HOFFMAN. You made changes in the aircraft which made it heavier.

Mr. MCDONNELL. Yes, sir.

Mr. HOFFMAN. And the body larger.

Mr. MCDONNELL. Yes, sir.

Mr. HOFFMAN. Which required a different engine with more power; isn't that right?

Mr. MCDONNELL. More power.

Mr. HOFFMAN. Sure. Then, of course——

Mr. HOLIFIELD. Let me try me hand at the question.

Mr. HOFFMAN. Of course, there came a time when they knew that first engine wouldn't go into the bigger plane?

Mr. ROBACK. That wasn't my question.

Mr. HOFFMAN. You read the question.

Mr. ROBACK. My question was, After the mission of the plane had been changed to a higher powered plane, an all-weather fighter, and it was testified that they would not get the WE–10 engine, that was never produced, they got a WE–22 of a lesser power. My question was, Was there any doubt in their mind when they received the WE–22 that it was insufficient to fly the redesigned plane?

Mr. HOFFMAN. What about the –10, too? As I understand it, Westinghouse was never able to get the required amount of power in any engine.

Mr. ROBACK. They never produced the –10. They did produce an –8. I was asking Mr. McDonnell whether there was any doubt in their firm's mind as to whether that engine would fly that plane properly, knowing its performance. Mr. McDonnell, do you want to make any further comment on that?

Mr. HOLIFIELD. I would like to try my hand to clarify the question.

On the short-range interceptor, as I recall, you were furnished the J–40–6 and –8 engines; is that correct?

Mr. MCDONNELL. Yes, sir.

Mr. HOLIFIELD. I never attended college. I can make a fairly short question.

Now, were those engines adequately powered to handle the airframe?

Mr. ALDRIDGE. Yes, sir.

Mr. HOLIFIELD. To handle it and render the performance which the Navy wanted?

Mr. MCDONNELL. May I confer with my associates a moment? This was 3 or 4 years ago, remember.

Mr. HOLIFIELD. All right.

Mr. MCDONNELL. Mr. Baldwin feels he can answer that one.

Mr. HOLIFIELD. Mr. Baldwin?

Mr. BALDWIN. The specification engine for the lightweight interceptor was the J–40–8. With that engine we met all of the guaranties of performance on that airplane. It flew with the –6 as an interim for some time until the –8 was available. And the –6 without the afterburner didn't have the performance.

Mr. HOLIFIELD. Your –6 did not have the performance. Did your –8 have the performance which you expected out of the engine with the airframe that it was installed in?

Mr. BALDWIN. Yes, sir.

Mr. HOLIFIELD. Then for some reason the Navy changed its mission to an all-weather fighter and you did not go into the production of that plane, although you say now you would have had a plane that was satisfactory and an engine that was satisfactory. Do you want to stand on that?

Mr. BALDWIN. Yes, sir.

Mr. HOLIFIELD. In the short-range interceptor?

Mr. BALDWIN. Yes, sir.

Mr. HOLIFIELD. All right. Now, the Navy changed the mission to an all-weather fighter, which required a heavier engine and they felt that they would furnish you with the WE–10 which would be the engine that would give you the ample power; is that right?

Mr. BALDWIN. That is right.

Mr. HOLIFIELD. But they never got to it, never got to the WE–10, but they did furnish you with the WE–22 engine for that particular plane; is that correct?

Mr. BALDWIN. That is correct.

Mr. HOLIFIELD. That was not satisfactory. This is the one that is grounded, the one that has been crashing, the one that has not been satisfactory; is that right? You can answer yes or no to that.

Mr. BALDWIN. I think the answer is "Yes." The –22 is the engine that was furnished for the 1N; yes.

Mr. HOLIFIELD. Let me understand. The final plane, the all-weather fighter, with the –22 engine is a satisfactory plane?

Mr. BALDWIN. The 1N with the –22 has definitely less than our expected performance and as we reported in our April 25 letter, it limits the effectiveness from that which we expected from a higher powered engine.

Mr. HOLIFIELD. So it is not satisfactory. If it were satisfactory you would continue in production. You have terminated the production. Why don't you come out and say it is not satisfactory and did not come up to the specifications which we expected?

Mr. BALDWIN. Mr. Chairman, there are the reliability factors which Mr. McDonnell pointed out on our summary sheet here which played a very major part in the decision to the effect that the airplane was unsuitable.

Mr. HOLIFIELD. If it is not reliable, it isn't satisfactory; is it?

Mr. BALDWIN. I was trying to distinguish reliability versus performance.

Mr. HOLIFIELD. I want to get to the bottom of this. If the engine is not reliable, it is not a satisfactory engine.

Mr. BALDWIN. That is correct.

Mr. HOLIFIELD. That is all I want.

Mr. ROBACK. Mr. Chairman, the question I asked was perhaps a little bit more complicated. We are not inquiring at this time whether

the engine is unreliable. It is on the ground and they won't fly it. The question is, Did they have any doubt that the engines they were receiving would do the job for which this redesigned plane was to be used? In other words, they were ordering an engine which had already been derated, to use Admiral Russell's words. Is it now a matter of discovery that the engine won't work or was it known that it would not work? If you can't answer that question, we will let the record stand on the documents received.

Mr. HOLIFIELD. Would you try to answer that question?

Mr. MCDONNELL. As you can plainly see, this kind of complex thing cannot appropriately be communicated from mind to mind purely by words. We have two large charts in which, if the committee has about a half hour and you can call an executive session, because on the other chart we get into confidential information——

Mr. ROBACK. Mr. McDonnell——

Mr. HOFFMAN. I submit he has a right to answer.

Mr. ROBACK. He is not talking about the question.

Mr. HOFFMAN. He is telling you why that question can't be answered in the way you want it answered.

Mr. MCDONNELL. We have these two charts right here, but unfortunately we had no way of knowing whether the committee would want us in executive session or public session. We made the best preparation we could. This one is right down the alley of your question, with all due courtesy.

Mr. HOLIFIELD. We will give you a chance to discuss it in executive session because we want to get to the bottom of it.

Mr. MCDONNELL. If you can call an executive session now, we have another simple chart in colors that helps to illustrate the answer. You are getting into matters-of-mind stuff, when did we lose confidence and when did we have confidence. We have a chart that illustrates it. Unfortunately there are a couple of items of classified information on it. In the morning we can have the classified information removed from that and show it to you in the morning.

Mr. HOLIFIELD. We have had a pretty long session. I think some of the members have asked that we adjourn at 5 o'clock, so I agreed to adjourn the committee at 5 o'clock. It is 5 minutes past 5. Maybe with clearer minds in the morning, we may be able to get to the answer.

We will adjourn the committee until 10 o'clock in the morning.

Mr. MCDONNELL. Thank you very much for the fairness of the committee.

(Whereupon, at 5:05 p. m., the subcommittee adjourned.)

NAVY JET AIRCRAFT PROCUREMENT PROGRAM

WEDNESDAY, OCTOBER 26, 1955

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON MILITARY OPERATIONS
OF THE COMMITTEE ON GOVERNMENT OPERATIONS,
Washington, D. C.

The subcommittee met, pursuant to adjournment, at 10:05 a. m., in room 1310 New House Office Building, Hon. Chet Holifield (chairman of the subcommittee) presiding.

Present: Representatives Holifield, Hoffman, and Lipscomb.

Also present: Michael P. Balwan, staff director; Herbert Roback, director of investigations; James F. Eckhart, assistant counsel; Earl J. Morgan, investigator; and Robert J. McElroy, investigator.

Mr. HOLIFIELD. The subcommittee will come to order. The Chair announces that certain biographical material regarding witnesses has been received as requested by Congressman Hoffman and will be inserted in the record at the appropriate point. (See p. 77.)

Mr. McDonnell, I believe we were questioning you at the time we adjourned last night. Did you have something prepared that you wish to state at this time?

FURTHER TESTIMONY OF J. S. McDONNELL, PRESIDENT, McDONNELL AIRCRAFT CORP.; ACCOMPANIED BY J. F. ALDRIDGE, VICE PRESIDENT FOR SALES AND SERVICE; D. P. MURRAY, MANAGER OF CONTRACTS; R. J. BALDWIN, CHIEF SYSTEMS ENGINEER

Mr. MCDONNELL. Yes, Mr. Chairman. Our company would appreciate the opportunity at this time of being permitted to reply to the evidence or alleged evidence that was written into the record immediately after lunch yesterday of alleged lack of good faith or negligence on the part of our company concerning foreign objects going through engines.

Mr. HOLIFIELD. You are referring at this time to material contained in letters from BAR to the Chief of the Bureau?

Mr. MCDONNELL. Yes, Mr. Chairman.

We put on the midnight plane last night our manager of quality control who has been right on top of that situation continuously for the past 3 years and who has been in this industry for a quarter of a century.

Mr. HOLIFIELD. All right, sir. Will you please give your name and your position to the reporter?

TESTIMONY OF H. EARLE MOORE, QUALITY CONTROL MANAGER, McDONNELL AIRCRAFT CORP.

Mr. MOORE. I am H. Earle Moore.

Mr. HOLIFIELD. Give your name please, and then we will swear you.

Mr. MOORE. H. Earle Moore.

Mr. HOLIFIELD. Production manager?

Mr. MOORE. Quality control manager, McDonnell Aircraft Corp.

Mr. HOLIFIELD. Do you swear that the testimony you are about to give this committee will be the truth, the whole truth, and nothing but the truth, so help you God?

Mr. MOORE. I do.

Mr. HOLIFIELD. Be seated. You may proceed, sir.

Mr. MCDONNELL. This problem of foreign objects passing through engines. That means any little pieces of wire or nut or bolt or any little thing in passing through the axial flow type of jet engine which has dozens and dozens of little blades in the compressor; those objects easily damage the compressor.

Now, our company, in handling over 2,000 J–34 engines on our flight ramp in St. Louis, got on top of that as regards the low powered J–34 engine, that only passes through it about 1 to 1½ tons of air per minute. When we came to the J–40 engine with the Demon, that engine at maximum power passes through it over 4 tons of air. That leads to a problem three times as great. And I would like to call on Mr. Earle Moore to pick up the ball at that point and tell of what he did.

Mr. HOLIFIELD. You are familiar with the excerpts from the BAR letters that were read yesterday and the evidence of complaints over a period of several months before apparently this trouble you were having was cleared up.

Will you direct your statement to those points?

Mr. MOORE. Yes, sir. At the receipt of Captain Murphy's letter which was dated October 8, 1954, engines had been damaged by the passage of foreign objects at the rate of approximately 1 engine per 150 hours of total engine operation.

Following receipt of Captain Murphy's letter we reexamined our procedures, those procedures that Mr. McDonnell has spoken of which were developed during our experience with the J–34 engine. We re-examined those procedures to determine what further objective steps we could take to get on top of this problem. We instigated several things. Inspections which we called multiple inspections being made by more than one person. We installed a system of floodlighting on our ramp to improve visibility for the after-dark operation.

We increased our emphasis on a program of indoctrinating all of our employees with the importance of exercising care relative to the presence of foreign material in the aircraft or about the airport. We decided that there would be advantage in determining whether other companies had evolved procedures not at that time known to us, which might be beneficial and I was asked to make a survey of five major airframe companies delivering jet-engine aircraft to the Government for the purpose of seeing whether they had other procedures in use relative to running engines or operations on the ramp.

I did that in October of 1954. The results of that survey showed that as far as ramp and engine operating procedures were concerned,

we discovered nothing in use that was not known to us and in use by us.

In fact we felt that we had perhaps taken more care in some areas than other companies had.

We determined that the problem of engine damage due to passage of foreign objects was a general problem throughout the industry.

We determined that one very large reputable manufacturer of aircraft had at one time in its program found it necessary to change 86 engines in a single-engined aircraft in order to deliver 80 aircraft.

The opposite extreme was another manufacturer who had been successful in operating periods as great as 400 hours between instances of engine damage due to the passage of foreign objects. I came home from that survey with one good idea. That was the tightening up of what we term extraneous materials control throughout the manufacturing operation. To us extraneous materials are such small things as bits of safety wire, cotter pins, small screws, bolts, nuts, washers adrift in the airplane, things that have been dropped there and have not been found or removed. Such material if it finds its way into the engine air induction system can damage the engine.

We tightened that up on the philosophy that such material has no place in the airplane, has no business being in the airplane or in its subassemblies at any phase of manufacturing. We tightened that up, we adopted an aggressive program, posters, personnel indoctrination. We made it mandatory for the chief inspector and factory superintendent to make routine surveys to determine that this procedure was followed. In brief, this procedure amounts to a continuous cleaning procedure rather than going a certain number of stages down the line and then getting to a cleaning stage.

We believe we convinced the individual that he was responsible for removing any foreign matter which either he left in the airplane or he found in the airplane or its subassembly as he was working on it. We carried that program into our subcontractors' plants. We have subcontractors making large significant assemblies of the airplane. We carried that program into their plants. They copied our program virtually verbatim, even using our poster campaign for that. We sent them copies for their use. In addition to the continuous cleaning program of every employee concerned with the airplane or its subassemblies—we have approximately one hundred points in the flow line from the first subassembly to the completed airplane wherein large industrial-type vacuum cleaners are used to suck out any extraneous material that might be in the airplane.

We instigated disciplinary action against employees who did not follow through on this thing. We have rest periods within the plant and the area supervisors make inspections during the rest period when the workers are not at their stations of work. We follow up. If a supervisor finds something in his area he knows who was working there and that fellow is in for some sort of disciplinary action. We have at one time or another found bucking bars in our airplanes or in the subassemblies of the airplanes.

Bucking bars are bits of iron that are used to drive rivets. We feel that bucking bars left in aircraft are a very real problem. We have always been concerned about it. The industry, likewise, has always been concerned about it. With the increasing complexity and density of the airplane, these things are harder to find. Over a period of 3 years we have researched a method permitting discovery of such items

which we think is foolproof. This incidentally is the first public disclosure of this method. We employed a firm of nuclear consultants who worked with us for a period of time to determine a safe material and a safe dosage of a radioactive element which could be introduced in the form of a capsule inside a bucking bar. That has been arrived at. Now we know what the material is and we know what the strength can be which will enable us to find the bar but will not hurt the worker who has to hold that bucking bar all day long.

We experienced a delay of several months in getting the necessary approvals from the Atomic Energy Commission for the procurement and the use of this material for this purpose.

We now have that approval. We have a total of approximately 8,000 bucking bars in use in our plant which are now being processed, introduction of this material in each one of those bucking bars. We have the first such bucking bars delivered to us. The program will be complete on all of these bucking bars in approximately 2 months. This will enable us to check a finished airplane or any subassembly we wish with a scintillation counter, a sort of super-Geiger counter, which will wave a red flag to us, figuratively speaking, if any bucking bar has been left in the airplane. We feel this is a real significant advance. We wish to offer this method to anyone who is interested in it, particularly in the aircraft industry.

I am not completely familiar with the testimony but I believe Captain Murphy's letter which I mentioned was read into the testimony. I should note that that letter was somewhat amended by another letter in which Captain Murphy said that he did not believe we acted in poor faith. I might read a passage from that if it is pertinent.

This letter was from BAR, St. Louis, and was dated 29 October, which was 14 days after McDonnell Aircraft had replied to the first letter that we spoke of. The letter opens with this statement:

In view of the strong adamant position taken by the contractor in reference B—

which is the McDonnell answer to the first letter—

and his flat disclaimer of any lack of good faith at any level, the Bureau of Aeronautics representative is constrained ruefully to withdraw his findings contained in reference A—

which is the first Murphy letter—

and will take no further action in the matter.

Mr. McDonnell. Mr. Chairman, I think that shows our company was working hard and faithfully to solve this problem with which the whole industry was harassed and I would like to say that the letters from the two Navy BAR's in St. Louis that were read yesterday show that those Navy representatives were on top of the situation all the time. It is their job and their duty and they do it to needle the manufacturer all the time to keep the manufacturer on his toes. That completes our testimony on that particular subject, sir.

Mr. Holifield. Thank you, sir.

Mr. Eckhart. Mr. Chairman?

Mr. Holifield. Mr. Eckhart?

Mr. Eckhart. Mr. Moore, most of your reference was to action taken by McDonnell Corp. after the letter of October 8, 1954; you

used the term "you tightened it up." In the letter of October 8, 1954, the BAR indicated that he was limiting his finding of liability to nine engines damaged by the passage of foreign objects during the calendar year. In the letter of June 27, 1955, the BAR states—

that the records of this office indicate that subsequent to the reference (*a*)—

the first letter to the contractor—

there had been a total of 32 recorded instances of foreign-object passage through engines. Of these 32, a total of 14 had been damaged to such an extent as to require their return to the engine manufacturer for overhaul.

As I see these 2 letters, the first one complains of damage to 9 engines during a 9-month period, and the letter of June 27, which covers a 9-month period, indicates there was damage to 32 engines. Do you feel that your program that was installed subsequent to October 8 was a successful one?

Mr. McDONNELL. I will call on Mr. Moore to answer that.

Mr. MOORE. I feel the program was beneficial, and I make this observation: At the time of Captain Murphy's initial letter of October 8, McDonnell was suffering instances of engine damage due to passage of foreign objects at the rate of approximately 1 engine per 150 hours of total engine operation. The procedures that we put into effect, the tightening up, so to speak, resulted in the next 8-month period of us getting to a maximum interval of 290 hours total engine operation between damage and an average of 215 hours for the period. That is approximately 50-percent improvement. That improvement was not satisfactory to McDonnell. We further, on the 23d of June 1955, appointed an Engine Damage Investigating Committee to reexamine the things we had done up to that point and to determine whether additional measures were possible.

As a result of the recommendations of that committee and the actions that were taken following those recommendations, we believe we attained a phenomenal degree of success.

Mr. ECKHART. Would the BAR, St. Louis, have sufficient information on which to make the determination as to how many accidents occurred based on the number of hours of operation of each engine?

Mr. McDONNELL. Yes, sir.

Mr. ECKHART. Well, according to the statement contained in Captain Sager's letter—this is from the letter of June 27, 1955:

Statistically speaking, this means that the McDonnell Aircraft Corp. is returning to the engine manufacturer for overhaul or repair an engine approximately every 80 hours of flight time on their combined test programs as a result of foreign-object damage.

Mr. MOORE. Yes, sir. I would like to clarify that point, though. The BAR has referred to hours of flight time. I have referred to total engine operating hours. This occurred during a period when we were having many problems to solve. A majority of our hours of engine operation occurred on the ground, and not in the air.

Mr. McDONNELL. I would like to emphasize that usually, and almost always,. as a matter of fact—it probably is a little—this trouble occurs on the ground. It is very significant, the hours the engine operates on the ground. When on the ground, depending upon the speed of the engine, there is from 1 to 4 tons of air passing through the engine per minute; there is more opportunity to take foreign objects through the engine.

Mr. ECKHART. What action has been taken by your company to insure the shop personnel handle these engines with the tools and the machinery that they should be handled with?

Mr. MOORE. Various things. We have a published procedure within our company, Processed Specification we term it, which outlines the care to be exercised relative to engines from the moment we take the engine out of the can until we fly it away in the airplane.

Mr. ECKHART. Mr. Moore, you weren't present here at yesterday's session when this statement was read into the record. I would like to read it to you now. I am quoting again from the letter of June 27, 1955:

> Further examples of disregard of safety procedures is evident by contractor personnel handling 5,000-pound engines with bomb dollies having a 2,000-pound lifting capacity and crated engines weighing in the vicinity of 8,000 to 10,000 with a forklift having a 6,000-pound lifting capacity.

Mr. MOORE. You wish my comments on that?

Mr. ECKHART. Yes, sir.

Mr. MOORE. The first statement, I believe I can say, definitely was found to be in error. The bomb dolly used is the bomb dolly specified in the detail specifications of the airplane. That is part of the specifications for the aircraft. That bomb dolly is a piece of ground-handling equipment which the services stock. In 2 of their publications they refer to it as a 4,000-capacity device. In another one they refer to it as a 5,000-pound capacity device. In the detailed specifications for the F3H–1N airplane we specifically specify that bomb dolly. The weight of the J–40 engine plus adapter was within the allowable limits for that particular dolly. The detailed specification for the –2N airplane in which we use a different engine, reference, the equipment as specified in the –1N specification.

At the time that point was made in that letter, we contacted the maker of the dolly and we talked to them in detail about their design and about their tests and we determined that their tests had been made up to some 8,000 pounds static load on the dolly and the dolly had operated satisfactorily.

In our reply to that letter, to that passage in that letter, we indicated that we were further pursuing a testing program to verify the ability of that dolly to handle the loads we were putting on it.

We did that by loading them statically with lead weights. BAR, St. Louis, personnel witnessed those tests. Those tests went, if my memory serves me right, I am quoting from memory at this time, I think those tests went to 8,400 pounds.

I know they went to more than 8,000 pounds, successfully and without a failure. At that point it was concluded by the BAR's representatives as well as ours that particular handling equipment was adequate for the purpose we were using it.

Now to go on to point 2 in that paragraph in which it is alleged that engines have been lifted, engines of certain stated weights have been lifted by fork trucks of a lower capacity. McDonnell Aircraft was unable to pinpoint the incident where it may have happened. We don't say it did not happen but we were unable to prove that it did happen. Since that time the handlers of such equipment have been rebriefed, the markings on the equipment showing their capacities have been, let us say, shined up, repainted. We believe that situation is under control.

Mr. ECKHART. Is it the responsibility of the airframe manufacturer or the Government to return damaged engines to the engine manufacturer for overhaul?

Mr. MOORE. The procedure in use is for the contractor to file a report indicating that damage exists and refer it to the BAR for disposition. That disposition is usually worked out between the BAR and the engine representatives stationed at the contractor's plant. The contractor is guided by whatever disposition those people decide upon.

Mr. ECKHART. Have you been complying with that requirement of the Navy to notify the Government whenever Government-furnished equipment has been damaged?

Mr. MOORE. Very definitely. In the case of engines, there are two notifications that are filed. One we call a DER, which is a Navy form meaning defective equipment record. That form is processed whenever any damage occurs or is discovered on any piece of Government-furnished equipment. In the case of the engines we prepare for the BAR another Government form, the title escapes me at the moment, but it is a form relative to damage to engines due to passage of foreign articles.

Mr. ECKHART. I have reference to paragraph 8 of this same letter, Mr. Moore, which states:

> The contractor has not complied with the terms of either the Navy or Air Force airframe contracts in that they have not properly informed the contracting officer of loss, destruction, or damage to Government-furnished property as required by armed services procurement regulations. In practically all cases of damage to the engines the information concerning the incidents has been discovered by and brought to the attention of the BAR by Navy inspection.

Mr. MOORE. I can best reply to that by quoting paragraph 8 in our letter in which we replied to Captain Sager's letter, and I quote:

> Paragraph 8 of reference (*b*) indicates that the contractor has not properly informed the contracting officer of loss, destruction, or damage to Government-furnished property as required by armed services procurement regulation, appendix B, section 402.2, revision A. The contractor has for years notified the BAR of damage to Government-furnished equipment by the reference (*c*) report. That is the DER I just described.

In such cases involving engine damage by passage of foreign objects, the reference (*f*) report, which is the foreign-object damage to engine report, has been processed in addition to the DER. Reference (*b*), which is Captain Sager's letter, "has been the first indication that this method of notification was inadequate," and we go on to say that in the future these two forms will be signed by myself.

Our basic purpose in asking me to sign them is to permit my office to conduct a running summary of the damage to Government-furnished equipment generally so that we can place our fingers on the pulse more effectively, so to speak, and perhaps we can foresee danger areas before we get there.

I would like to add also that in Captain Murphy's letter of October 8 he referred to the DER's by reference and did not question them as a method of notification to the BAR.

Mr. ECKHART. Actually he held the contractor responsible for these damages. They had been properly reported, but nevertheless the contractor was responsible for the damage?

Mr. MOORE. That isn't the point I wanted to make. The point I wanted to make was that the method of reporting to Captain Murphy

was considered satisfactory insofar as we know in that it had never been brought to our attention that it was otherwise, but the same method of reporting was questioned by Captain Sager.

Mr. ECKHART. As I understand your testimony, you indicate that some of these paragraphs in this letter do not contain the entire story. We received testimony yesterday that the board of investigation appointed by the BAR, St. Louis, recommended that the contractor be held pecuniarily liable for the damage to these engines and you feel that the position of your company is to accept that liability as found by that board, or do you feel that you are not responsible and that you are going to take legal action so that your company will not have to pay for those damages?

Mr. MCDONNELL. I would like for Mr. Murray, our manager of contracts, to briefly report on that one.

Mr. MURRAY. We have replied to both Captain Sager's and Captain Murphy's letters to the effect that we are not legally liable under the terms of our contract. We have understood that in the case of Captain Murphy's letter the contracting officer of BuAer is in agreement. We have not heard concerning the status of our reply to Captain Sager's letter. Our position is that we are not legally liable on that.

Mr. HOLIFIELD. In other words, in any assessment of damages to the Government property which occurred while it was in your custody, you deny the liability for such damage and will contest it in any adjustment negotiations?

Mr. MURRAY. That is our present position, sir.

Mr. MCDONNELL. Mr. Chairman, the questions from Mr. Eckhart yesterday and today carry the implication that our company by their negligence on this item may have been in some way responsible for the crashes of certain airplanes. That is not true in 1 very decisive way, and 1 very decisive piece of evidence is this: During the same time period operated by the same people on the same flight ramp we have run hundreds and hundreds of flights on the F101 Voodoo with an engine of entirely different make, the Pratt and Whitney J–57. No one of those airplanes has ever crashed, no pilot has ever ejected from one, and no pilot has ever been damaged in one.

Mr. HOLIFIELD. That engine performance is not under scrutiny by this committee. The engine we are interested in is the J–40 series of engines and those engines have apparently been troublesome. The fact that other engines operated with greater reliability does not solve the problem of the J–40's unreliability.

Mr. LIPSCOMB. Mr. Chairman?

Mr. HOLIFIELD. Mr. Lipscomb.

Mr. LIPSCOMB. Do I understand that the Murphy letter has been completely cleared up as far as your company is concerned?

Mr. MCDONNELL. You have to ask Captain Murphy that.

Mr. LIPSCOMB. I don't get the name of the man here.

Mr. MURRAY. Murray is my name, sir.

Mr. LIPSCOMB. Did you say that Murphy's letter had been cleared up and you have Sager's letter only?

Mr. MURRAY. It is my understanding that the Murphy letter has been resolved that McDonnell is not liable.

Mr. LIPSCOMB. How do you understand that?

Mr. MURRAY. We first understand that by the excerpts that Mr. Moore read from Captain Murphy's reply to our letter replying to

Captain Murphy's first letter. We have also heard in discussions with people in the Bureau of Aeronautics that they consider that the subject has been resolved in our favor; whether it is based on Captain Murphy's letter or an examination of the legal facts, I can't say.

Mr. LIPSCOMB. What people in the Bureau of Aeronautics are you speaking of?

Mr. MURRAY. I am not speaking firsthand, sir, so I would have to consult the people who have advised me to answer that accurately.

Mr. LIPSCOMB. What people have advised you of that?

Mr. MURRAY. Some of my people in the McDonnell contract division.

Mr. LIPSCOMB. That they have been in contact with someone in the Bureau of Aeronautics?

Mr. MURRAY. Yes, sir.

Mr. LIPSCOMB. How recently?

Mr. MURRAY. This is many months old to the best of my memory. That is not a recent development.

Mr. LIPSCOMB. Was it prior to Captain Sager's letter?

Mr. MURRAY. I believe so.

Mr. LIPSCOMB. And you don't know the name of the people in the Bureau of Aeronautics?

Mr. MURRAY. No, sir; but I think that is readily determinable.

Mr. LIPSCOMB. Was it resolved before the letter was received from Captain Sager?

Mr. MURRAY. I said I believe so, but I am quoting from memory.

Mr. ECKHART. Mr. Chairman, in talking about this situation here, I directed a question to Mr. Moore. I was referring to the board of investigation appointed by the BAR, St. Louis, to investigate the complaints alleged in Captain Sager's letter of June 27, 1955.

We received testimony yesterday that this board had met, had conducted its investigation, and had reached certain findings and conclusions. One of the findings and one of the recommendations contained in the report of that board of investigation was that the contractor should be held liable for the damage occasioned to these engines. This recommendation was concurred in by the BAR, St. Louis. Now my question is, Does the McDonnell Corp. intend to disclaim liability either administratively or legally in connection with the finding of this board of investigation?

Mr. MURRAY. Yes, Mr. Eckhart; I believe our letter replying to Captain Sager's letter stated the reasons for our adopting our position.

Mr. ECKHART. Do you happen to have a copy of that letter with you?

Mr. MURRAY. Yes, sir, we do.

Mr. ECKHART. Before that is read, Mr. Chairman, I would like to read just one statement from Captain Murphy's letter of October 8, 1954, I am quoting from paragraph 5:

> It is the fervent hope of the BAR, St. Louis, that the finding transmitted herein will receive full, honest, and soul-searching consideration by the contractor. It is fully realized that the terminology of reference (*a*) allows considerable room for legalistic maneuvering on the question of contractor liability. Should the contractor refute the finding of the BAR, and in subsequent action, assuming the finding of the BAR is upheld (which it must be added parenthetically is no certainty), succeed in winning an appeal, it would certainly enhance the contractor's reputation for sea lawyering. It could hardly serve, though, to convince anyone fully familiar with the circumstances involved that it represented a sincere effort by the contractor to serve the customer to the maximum of his ability. Therefore it is again hoped that this letter will not be refuted for the

sake of so doing, nor reviewed with preconceived decisions as to position in the matter.

Do you feel that Captain Sager is fully familiar with the circumstances?

Mr. McDONNELL. Mr. Eckhart, are you quoting from the letter of Captain Murphy in 1954 or the letter from Captain Sager in 1955?

Mr. ECKHART. I am quoting from the letter of Captain Murphy now of October 8, 1954, which represents the opinion of the BAR, not with respect to any particular letter, but with respect to the position that a contractor could take with respect to complaints of the BAR stationed at his plant.

Mr. McDONNELL. I would like to say in answer to that that Mr. Moore has already read to the committee pertinent excerpts from a subsequent letter from Captain Murphy in which Captain Murphy receded from that position after further evidence had been submitted to him.

I should also like to say as regards—what is the term, "sea lawyering"?

Mr. ECKHART. That is a term used here.

Mr. McDONNELL. There is not a lawyer here today and none yesterday. We are just a bunch of engineers trying to do the best we can.

Mr. ECKHART. Do you have a general counsel for your corporation?

Mr. McDONNELL. We don't even have a general counsel.

Mr. ECKHART. Do you have any lawyers on your staff?

Mr. McDONNELL. We have a legal department. Thomas G. Rutledge, the secretary of our company, who has in his department one secretary. We don't go in for sea lawyers.

Mr. ECKHART. Would he handle any cases that would be brought up in the courts or would you four people handle it?

Mr. McDONNELL. Repeat the question, please.

Mr. ECKHART. If this action were taken into the court for determination, would you four people sitting here handle it? Or would your legal staff handle it or would you retain an outside firm of lawyers to represent it?

Mr. McDONNELL. We might do any of those things depending upon what our workload was at the time.

Mr. ECKHART. I believe, Mr. Murray, you were going to reply to the statement to give some justification why the company is going to pursue this in the courts if necessary.

Mr. MURRAY. I believe a very pertinent point that is perhaps not generally understood is that the provisions of our contracts preclude us from carrying insurance on damage to Government-furnished equipment.

We can insure the material which we are currently buying and processing ourselves. In other words in process of an uncompleted airplane we are allowed to insure that under the terms of our contract. We are not permitted to carry insurance for Government-furnished equipment but are requested to exert our best efforts—and I think Mr. Moore stated our position—in caring for this Government-furnished equipment.

Mr. ECKHART. Of course, it is possible for the courts to hold an individual liable for damage even though that damage might not be compensated by any type of insurance.

Mr. MURRAY. That is true. The clause governing liability for Government-furnished equipment as carried in our supply contracts states in very general—this is summarizing it very briefly—that only negligence on the part of top management is cause for assessing liability against the company.

I am paraphrasing from the contract clause. I do not have one with me.

Mr. ECKHART. Mr. Chairman, that was all I had on this point.

Mr. HOLIFIELD. Mr. Lipscomb, did you have anything?

Mr. LIPSCOMB. No questions.

Mr. HOLIFIELD. Mr. Hoffman, do you have any further questions?

Mr. HOFFMAN. No questions.

Mr. HOLIFIELD. Mr. McDonnell?

Mr. MCDONNELL. Might I add one item of pertinence? In our quality control department we have 976 employees, that is out of a total employment of about 14,000. We feel we are right on top of it and we are ready to meet any challenge on it.

Mr. HOLIFIELD. You are the president of the company, Mr. McDonnell.

Mr. MCDONNELL. Yes.

Mr. HOLIFIELD. Who are the vice presidents of your company?

Mr. MCDONNELL. The vice presidents of our company are Robert H. Charles; the executive vice president, C. W. Drake, Kendall Perkins, John Aldridge, Lloyd Harrison, Garrett C. Covington, William R. Orthwein.

Mr. HOLIFIELD. Thank you, sir.

Mr. LIPSCOMB. Mr. McDonnell, it is the system at the present time, or it was, for the Government to purchase the engines, send them to you and you mate them with airframes; is that right?

Mr. MCDONNELL. Yes, sir.

Mr. LIPSCOMB. Is there a policy, does the Government usually contact an enginemaker first, and is the engine usually in development before you are contacted to design and perhaps build the airframe?

Mr. MCDONNELL. Yes, sir.

Mr. LIPSCOMB. And that was the case in the F3H; the J–40 engine was on the drawing board and there were firm specifications and that was brought on to you along with other engines and you picked the J–40 and made the design in accordance with that particular engine?

Mr. MCDONNELL. Yes, sir.

Mr. LIPSCOMB. Then after you got the design and started the airframe development you developed the XF3H 1 which included the J–40 engine, and according to your statements on page 4, it was a rather successful airplane? Is that right?

Mr. MCDONNELL. Page 4, which line?

Mr. LIPSCOMB. It is in the second paragraph. You said that the XF3H–1 experimental version of this airplane made its initial flight on the 7th of August 1951 during the Korean war utilizing an early form of the J–40 engine, the J–40–WE–6.

It said that the early troubles encountered with the engine were not considered to be seriously out of line at that stage of development and also the experimental aircraft indicated that it was generally

satisfactorily designed and that was the short range interceptor design which you won in competition with other manufacturers?

Mr. McDONNELL. Yes, sir.

Mr. LIPSCOMB. Then after that plane had flown, you would have ordinarily continued the development on that to get what you would consider a good airplane, almost perfect, if that design had not been ordered changed according to Navy request, is that right?

Mr. McDONNELL. That question is probably not susceptible to a simple yes or no answer, Mr. Lipscomb—I believe you are Mr. Lipscomb?

Mr. LIPSCOMB. Yes, sir.

Mr. McDONNELL. I think that, if I understand your question right, we have a couple of unclassified charts here that will help on it. On the other hand, I can state without referring to charts that if the original specifications for short-range interceptor had been retained, that obviously that type airplane could have been purchased quicker than was involved in the change of the design to a medium range, all-weather general-purpose fighter.

Mr. LIPSCOMB. Then after that was developed and flown, the Navy changed its specifications on it to get this all-weather airplane. Then did they request you to make a new design around a specific engine or did you just make a new design around the J–40 engine–WE–6?

Mr. McDONNELL. I will call on our chief systems engineer, Mr. Baldwin to answer that.

Mr. BALDWIN. To answer that question, the configuration of the production all-weather type airplane was very similar to the XF3H, and the design of it was premised on a higher powered version of the J–40 engine.

Mr. LIPSCOMB. Why did you design it on the premise that you were going to have a different engine? In other words, if I may go ahead a little bit more, you had firm specifications on the J–40–WE–6, is that right?

Mr. BALDWIN. And the WE–8.

Mr. LIPSCOMB. Did you design the new plane on the basis of firm specifications on a particular engine?

Mr. BALDWIN. There were current specifications on the WE–10 that were used as the basis for the design.

Mr. LIPSCOMB. When you began the design of this new plane, in what stage of development was the WE–10?

Mr. BALDWIN. The WE–10 was in the heavier and long-range version from the very inception of the design.

Mr. LIPSCOMB. Well, which came first in this game, did the design of the airplane or the design of the engine?

Mr. BALDWIN. The WE–10 engine was under contract before we made the design studies for the F3H airplane.

Mr. LIPSCOMB. When you began the other plane, the interceptor, you had firm specifications on the thrust and the weight and all the rest?

Mr. BALDWIN. Of the WE–8.

Mr. LIPSCOMB. Of the WE–8 and WE–6?

Mr. BALDWIN. That is right.

Mr. LIPSCOMB. But you didn't have those when you began the design for the all-weather fighter?

Mr. BALDWIN. Yes; we had the specifications for the WE–8 and also for the WE–10. The higher-powered WE–10 was absolutely required to show the performance we wanted to show, the performance we wanted in the F3H–2.

Mr. LIPSCOMB. When you made the designs on the all-weather feature, did you design the plane with the idea of having the engine to take care of the larger fuselage and greater weight required in the airframe?

Mr. BALDWIN. Yes, sir. Our design performance characteristics were based on having the WE–10 available.

Mr. LIPSCOMB. Were there any changes in policies, was the airplane designed first in this case and the engine later?

Mr. BALDWIN. No, sir. The WE–10 engine was under contract and we had specifications available to us at the time we started the design work on the all-weather version of the airplane.

Mr. LIPSCOMB. And you didn't believe, when you designed this new plane, you were going to use the WE–6 or 8?

Mr. BALDWIN. No, sir.

Mr. LIPSCOMB. You knew and had all the specifications on the engine you were going to use in the all-weather fighter?

Mr. BALDWIN. Yes.

Mr HOLIFIELD. Mr. Hoffman.

Mr. HOFFMAN. This is repetitious, probably. I am trying to get at what Mr. Lipscomb I think was trying to get at.

I understood you to say that the first plane, the interceptor was built around the first engine, that was the 8?

Mr. BALDWIN. Yes, sir.

Mr. HOFFMAN. Then did I understand you to say that that plane would operate around that engine?

Mr. BALDWIN. The XF3H airplane with the –8 engine would meet the performance guaranties we gave the Navy for that airplane.

Mr. MCDONNELL. For the short-range interceptor.

Mr. BALDWIN. Yes.

Mr. HOFFMAN. Then what happened in the next step, was the Navy changed to a larger, heavier plane, this all-weather job, and did they select an engine for that before they called for the plane?

Mr. BALDWIN. I imagine that part of their decision was that we could extrapolate the interceptor to a long-range airplane.

Mr. HOFFMAN. What?

Mr. BALDWIN. Part of their decision that we could go to a higher powered airplane was based on the fact that a higher thrust J–40 was presumably available.

Mr. HOFFMAN. You mean that if they put into the first plane that you manufactured for them a bigger engine, it would result in an all-weather item?

Mr. BALDWIN. It would require major change to the airplane.

Mr. HOFFMAN. What is that?

Mr. MCDONNELL. The required major change of the airplane to convert it from interceptor to an all-weather, medium-range fighter.

Mr. HOFFMAN. What made the trouble then? If the first one that the motor was built around was all right, what made the trouble?

Mr. MCDONNELL. Yes, Mr. Hoffman, that is a very good question. In changing the design of the airframe from a short-range interceptor

to a medium-range all-weather fighter, the weight of the airframe had to be increased. Although the two airplanes to the casual eye would look more or less alike, there was hardly a piece of the individual part manufacture but what took a new drawing for the ship. The weight of the airframe went up, the weight of the equipment in the airplane went up. For instance the all-weather fighter had a great big radar in it and a lot of heavy—what we call block boxes—full of electronic equipment, all Government-furnished equipment.

Then a much larger amount of fuel had to be supplied in order to go the greater distance.

Mr. HOFFMAN. So you just got more of everything?

Mr. MCDONNELL. That is a rough summary.

Mr. HOFFMAN. That is a broad statement, yes.

Mr. MCDONNELL. Yes, sir. So then it took a more powerful engine.

Mr. HOFFMAN. Wait a minute. I thought the answer to Mr. Lipscomb was you made the engine first and then built the plane around it.

Mr. LIPSCOMB. That was my understanding.

Mr. MCDONNELL. The situation is that the airframe manufacturer never has a proven production engine that has already passed the 150-hour type test when the airplane manufacturer comes to lay down a new design. Due to the great rapidity of the evolution, and for the Navy to keep its combat airplanes ahead of the potential enemy, we have to always be running the reasonable risk of projecting these things into the future on a risk basis.

Mr. HOFFMAN. Assuming the first outfit, the plane and the engine were all right and would answer the purpose for which they were designed, the trouble grows out of the fact, does it, that the Navy decided then that they wanted an all-weather fighter?

Mr. MCDONNELL. I would say, Mr. Hoffman, that the Navy's problem was that between 1948, when they laid down the design competition specifications for short-range interceptor which met a requirement at that time, and 1950, the Korean war had come.

Mr. HOFFMAN. They had to have something better.

Mr. MCDONNELL. And their requirements changed. And they in good faith set about doing that. What could they do? Here was a short-range interceptor. We can turn that into a medium-range all-weather fighter.

Mr. HOFFMAN. You don't mean they could use the same plane, they had to have a new one?

Mr. MCDONNELL. You redesign it. But in redesigning it you proceed more rapidly than if you are starting again, all over again fresh. That would give one instance of the requirement for it.

Mr. HOFFMAN. Did they buy too much plane for the second engine?

Mr. MCDONNELL. No, sir.

Mr. HOFFMAN. Here is what I get from the press, that someone bought a lot of planes and they put in them an engine that would not get them off the ground.

There is the newspaper story if I read it correctly.

How did that come about, if that is true?

Mr. MCDONNELL. It comes about, it seems to me, Mr. Congressman, because our great American newspapers have to use pretty rough and ready methods of getting news out in a hurry. They have never been noted for correct technical——

Mr. HOFFMAN. You mean they are something like we are when we run for office. They have to have something to attract attention.

Mr. MCDONNELL. Yes, sir. Thank you, Mr. Congressman.

Mr. HOFFMAN. Then I gather from what you say, there isn't too much factual information in some of these newspaper stories in connection with what the Navy and you were doing and Westinghouse?

Mr. MCDONNELL. Our friends in the great American free press, I am sure, have done their best in the limited time they had to knock out the story——

Mr. HOFFMAN. And with their limited knowledge.

Mr. MCDONNELL. To try to convey something but they have thoroughly clobbered the true scientific and technical aspects of this situation.

Mr. HOFFMAN. How did that hit you, Mr. Chairman?

Mr. HOLIFIELD. I am sorry, I was conferring with the staff.

Mr. HOFFMAN. Will you repeat that answer, will you read it, Mr. Reporter? The sort of conclusion that I wondered was satisfactory to you.

Mr. HOLIFIELD. I didn't hear. Will whoever made the comment please repeat it, was it you?

Mr. HOFFMAN. The witness.

Mr. HOLIFIELD. Will the reporter read the comment that Mr. Hoffman refers to.

(Comment read.)

Mr. HOFFMAN. That was the only one I wanted to call to your attention.

Mr. HOLIFIELD. I thank you for calling it to my attention. One of the reasons for a fair impartial congressional hearing is to allow the parties in any kind of a controversy which affects the American taxpayer to spread their story on the record under oath so there may be a credible record for the American people to look at, and certainly this committee is interested only in one thing and that is getting the true facts on the record.

I believe that they are being put on the record and I appreciate the cooperation of the witnesses.

Mr. HOFFMAN. And you are doing an exceptionally fine job in keeping it that way.

Mr. HOLIFIELD. Thank you, sir.

Mr. LIPSCOMB. Could you tell me, Mr. McDonnell, what the date of the change was from a short-range interceptor to an all-weather fighter?

Mr. MCDONNELL. I will call on our manager of contracts, Bob Baldwin.

Mr. BALDWIN. March 1951 was the contract date for the F3H–1.

Mr. LIPSCOMB. And you flew the XF3H–1 in August 1951?

Mr. BALDWIN. That's right.

Mr. LIPSCOMB. When did you know that you were not going to build a short-range interceptor?

Mr. BALDWIN. I might just answer that this way, that the aerodynamics similarity between the XF3H and the F3H airplane was sufficiently close that the flight testing we did on the X airplane was almost directly applicable to the development of the production airplane. So although before we fly the X airplane we had a pretty good idea that that was not exactly the configuration that would go

into production, all of that flight testing was of immeasurable help in establishing the F3H configuration.

Mr. LIPSCOMB. Even though it had a larger fuselage and weighed more?

Mr. BALDWIN. Yes, sir.

Mr. LIPSCOMB. Is it usual policy or does it happen often that the Navy gives you a contract on one type of a plane and then changes to another type on the same contract?

Mr. BALDWIN. It has not been usual for us. It has been done on other contracts.

Mr. LIPSCOMB. Isn't it ordinarily the policy that when they change to a different type of a plane it also goes out on competitive bid?

Mr. BALDWIN. I think the time we could save by having the 18 or more months of engineering behind it in this case and the early flight testing with the X was a consideration in going ahead on a negotiated basis.

Mr. LIPSCOMB. When you started the XF3H you had, as I understand the testimony, drawings to scale, and other specifications, available to you so you could make your design and go into this competition for this plane?

Mr. BALDWIN. Yes.

Mr. LIPSCOMB. Now, did you have the same drawings and specifications when you started the design on the all-weather flight?

Mr. BALDWIN. We had the same drawings and specifications of the WE–10, higher powered engine version.

Mr. LIPSCOMB. Was the development of the engine as far along on the WE–10 as it was on the WE–2–4–6–8?

Mr. BALDWIN. No, it was a later version and at that stage was just on paper. There wasn't a hardware engine available at the time of the design of the F3H–1.

Mr. MCDONNELL. I believe that Mr. Baldwin misunderstood your question. I believe what Mr. Lipscomb was asking was at the time that our company received the contract for the F3H–1 with the –10 engine, was the engine as far along relatively at that time as 2 years or 3 years earlier when we revived the contract for the XF3H–1, the –6 engine with which they first flew, its stage of development at that time. If that is what Mr. Lipscomb meant, the answer, I believe, is "Yes." Relatively at the 2 periods of time, 2 or 3 years apart, the development of the engines were substantially the same. But of course in 1951, the –6 engine and –8 engine, early in 1951 were farther along than the –10 engine was at that time.

Mr. LIPSCOMB. I don't understand you. Was the WE–10 in the same stage of development when you got the contract in March 1951 for the all-weather fighter as the WE–6 was when you got the contract and developed the XF3H?

Mr. MCDONNELL. In 1948?

Mr. LIPSCOMB. Yes.

Mr. MCDONNELL. The answer to that is yes. To the best of our knowledge. The Navy knows more about that.

Mr. LIPSCOMB. And you made the design for the all-weather fighter around the WE–10?

Mr. BALDWIN. Yes, sir.

Mr. HOFFMAN. Mr. Chairman, you were through?

Mr. LIPSCOMB. Yes.

Mr. HOFFMAN. I want a question or two.

The reason for my statement a few moments ago was this statement in the information I had received which appears in the Washington Daily News September 20:

House investigates Navy jets that won't fly.

Evening Star, April 28, 1955:

Inquiry into jets that won't fly gets under way. The House Subcommittee on Military Operations has begun preliminary investigations of published reports that the Navy has spent large sums of money on fighter planes that will not fly.

The only comment I had was I heard that somewhere and that was what I was asking about.

Mr. HOLIFIELD. Mr. McDonnell, I think it would be very good if at this time you would clarify the record; the term, "planes that will not fly," of course is a loose term. There has never been any contention as far as I know that these planes would not fly; has there?

As a matter of fact they do fly; do they not? All of them that you have taken up off the ground have flown up off the ground?

Mr. MCDONNELL. We certainly welcome this question which you and Mr. Hoffman have brought up.

Mr. HOLIFIELD. I think the loose term which is sometimes used that a plane will not fly deserves an explanation.

Mr. MCDONNELL. Yes, sir. I can state as follows: That of the 60 of F3H–1 airplanes, 23 have actually flown to date, 4 of them have been converted to the more powerful J–71 engine. There are 54 airplanes still in existence; of those 54 airplanes, if the Government will supply proven J–71 production engines, our company can put these engines in 51 out of those 54 airplanes, in every one of those, and every one of those airplanes can fly with relative safety so far as simply flying around is concerned, but the more complex problem that the Navy has is what good would they be in combat against the latest thing that a potential enemy might have by the time these airplanes would be in the hands of combat squadrons, and I believe the Navy has made a very wise decision and have pondered on that complex question a long time as regards finding its answer to it.

These airplanes, these 51 airplanes, were the J–71 engine, in my humble judgment—I will say, I will state it authoritatively—it is my belief that they could smash out of the skies any airplane on either side that showed up in the Korean war.

Now the Korean war is over. What good would they be for something that might occur 2 years from now? I believe I can state, in combat they would be very little good against a first-class power. They would still be quite effective against a second- or third- or fourth-rate power.

Mr. HOLIFIELD. You are speaking of the airframe with the J–71 engine.

Mr. MCDONNELL. Yes, sir, of that.

Mr. HOLIFIELD. Of course the J–71 engine is not a matter of inquiry by this subcommittee. We are inquiring about the J–40 engines. As far as the J–40 engines are concerned, those that have been installed did fly the planes, but they were unreliable and they were rejected for the J–71 engine as I understand it.

Mr. MCDONNELL. Yes, sir.

Mr. HOLIFIELD. Why were they rejected? Why were the J–40 engines rejected? On the basis of what particular point, so that a lay person can undertsand it?

Mr. MCDONNELL. I would like to call on our vice president John Aldridge to show a chart that summarizes 101 points and that can be presented in 2 minutes or whatever time the committee has.

Mr. HOLIFIELD. We are going to look at charts in executive session. We don't want to become involved in charts at this time but can you give us in lay persons' terms, was the J–40 engine reliable?

Mr. ALDRIDGE. The J–40 engine, Mr. Chairman, was sufficiently reliable under the conditions which exist on our own flight ramp to make flying not unduly hazardous. But they were definitely not sufficiently reliable for day-in-day-out operation by the Navy service squadron.

Mr. HOLIFIELD. In other words, when they were flying in formation or going through the maneuvers necessary for a combat plane, they failed in their mission?

Mr. ALDRIDGE. Stated a slightly different way, Mr. Chairman——

Mr. HOLIFIELD. Is that true? I am trying to state it as clearly as I can. They did not fulfill the requirements of the Navy.

Mr. ALDRIDGE. Yes, sir; that is correct.

Mr. HOLIFIELD. Now, after the J–40 engine was changed to a different type of engine and the weight of the airframe was increased from, I believe approximately 22,000 to 29,000 pounds, did this changed engine fulfill the requirements of the Navy?

Mr. BALDWIN. Mr. Chairman, the change in gross weight from 22,000 to approximately 29,000 occurred between the interceptor version X airplane and the J–40 powered all-weather airplane.

Mr. HOLIFIELD. After this change was made to the all-weather plane, did the improved engine that was placed in the all-weather plane—I am still talking about your J–40 class. The –22 was put in, was it not? The –22 was put in, which as I understand it, was an improvement over the J–40–6 or the J–40–8. Did that fulfill the Navy's requirement for type of plane?

Mr. BALDWIN. The J–40–22 installed in the F3H–1N did not meet the original performance that was planned for the F3H–1. It required the larger –10 to do this.

Mr. HOLIFIELD. And therefore it is not contemplated to continue the manufacture of that engine for use in the airframes which your company produces?

Mr. BALDWIN. Yes, sir.

Mr. HOLIFIELD. You are changing to the J–71, which is a different engine, as I understand it, an engine made by the Allison people; is that correct?

Mr. BALDWIN. That is correct.

Mr. HOLIFIELD. I think we have got the sequence of that clear. There is one other question that I would like to ask.

Has there at any time been any claim that the airframe which the McDonnell people have made has been deficient in its performance or in its meeting of specifications? I am speaking of the airframe now.

Mr. MCDONNELL. Mr. Chairman, this airframe has had the usual number of bugs that all new airframes have.

In this case, it has been made more excruciating by the fact that the only way an airframe manufacturer can work the bugs out of the airframe is to get the airplane in the air.

The only way we can get the airplane in the air is with the jet engines. When the jet engines are delayed or unreliable, that strings out the working of the bugs out of the airframe to an excruciating extent, and that has occurred on this airplane. We have worked long and hard to work them out as fast as we could.

As you know, three of our pilots have lost their lives in our effort to expedite the perfection of the airframe.

Now, the engine is also only perfected if you can get it in the air. No engine manufacturer can develop a good engine on the ground and in the wind tunnel completely. The final test is to get that engine in the air and give it hell. And that is what has been going on.

Mr. HOLIFIELD. Has your airframe met the tests since you put the LJ–71 engine in or the J–71?

Mr. MCDONNELL. I beg your pardon. Could you repeat the question?

Mr. HOLIFIELD. Have your airframes been satisfactory after the installation of the better engine, the J–71?

Mr. MCDONNELL. In the judgment of our company, that airframe with that engine is now very close to being fleet ready. Being fleet ready is something that means a lot in the Navy. It means it is ready for combat.

The airplane is not at that point, but we expect early in 1956, in a few months, to be delivering such fleet-ready airplanes.

Mr. HOLIFIELD. I assume your opinion of its reliability is shared by the Navy?

Mr. MCDONNELL. I hope so, sir.

Mr. HOLIFIELD. Admiral Russell, do you have the same high hopes and confidence in the new model?

Admiral RUSSELL. Precisely so.

Mr. HOLIFIELD. Thank you very much.

Now, at this time I would like to have one of you gentlemen vacate your chair, whichever one you prefer, and we will have your vice president, Mr. Harrison, come to the stand.

Mr. Harrison, will you give your name and your title with McDonnell Aircraft Corp. to the reporter please?

Mr. HARRISON. Rear Adm. Lloyd Harrison, United States Navy, retired, vice president, procurement, McDonnell Aircraft Corp.

Mr. HOLIFIELD. Admiral Harrison, do you swear that the testimony you are about to give this committee will be the truth, the whole truth, and nothing but the truth, so help you God?

Mr. HARRISON. I do.

Mr. HOLIFIELD. Be seated. Admiral Harrison, you have recently retired from the Navy, I believe.

TESTIMONY OF LLOYD HARRISON, UNITED STATES NAVY (RETIRED), VICE PRESIDENT, PROCUREMENT, McDONNELL AIRCRAFT CORP.

Mr. HARRISON. That is correct, sir.

Mr. HOLIFIELD. What was your date of retirement?

Mr. HARRISON. The date of retirement is July 31, 1955.

Mr. HOLIFIELD. Was your retirement by request or voluntary?

Mr. HARRISON. It was a request on my part to the Secretary of the Navy.

Mr. HOLIFIELD. How many years' service have you had in the service?

Mr. HARRISON. I had 39 years plus at that time.

Mr. HOLIFIELD. During the term of September 1952 until July 31, 1955, what was your title in the Navy in BuAer?

Mr. HARRISON. I was Deputy and Assistant Chief, Bureau of Aeronautics.

Mr. HOLIFIELD. To whom were you deputy or assistant chief?

Mr. HARRISON. There were several chiefs. The first was Rear Admiral Combs. The next was Rear Admiral Soucek. The third was Rear Admiral Russell. For a period of approximately 1 month I was acting chief between the time of the detachment of Admiral Soucek and the reporting for duty of Admiral Russell.

Mr. HOLIFIELD. So from 1951 through the date of your service up to July 31, 1955, you have held these responsible positions in the BuAer?

Mr. HARRISON. The 1951 date is incorrect. From September 1952.

Mr. HOLIFIELD. September 1952. What were your duties in that position, Admiral?

Mr. HARRISON. Briefly I was the principal administrative assistant to the Chief of the Bureau and his deputy in his absence.

The duties as the administrative head were heading the administrative group which was concerned with military and civil personnel, the controllership operations of the Bureau, the plans, coordination effort, and enterprises of that sort giving general service to the Bureau.

Furthermore, I performed numerous duties in relief of the Chief of the Bureau as delegated, informally delegated responsibility.

Mr. HOLIFIELD. During several months of that time, Admiral Soucek, I believe, was ill and on sick leave, was he not?

Mr. HARRISON. Yes, sir. He was actually subsisting in the hospital during the greater part of the months of December and January, 1954 and 1955.

Mr. HOLIFIELD. And during that period of time were you Acting Chief of the Bureau?

Mr. HARRISON. In a legal sense, no. As a practical matter, yes.

Mr. HOLIFIELD. During your period of service under Admiral Combs, Admiral Soucek, while you were Acting Chief in practice and under Admiral Russell, did you have as part of your duties the consideration of the signing of the research and development contracts or the production contracts of the McDonnell Aircraft Corp.?

Mr. HARRISON. I had no direct relation to them in the sense of their being my immediate responsibility. But all contracting papers over a $300,000 limit and important terminations with regard to all contracts came to me routinely for clearance or review at a certain stage in the process before they were finally executed.

Mr. HOLIFIELD. And, of course, when they were executed, before executing those referred items which involved more than $300,000, you had conferences with the people of your staff who had drawn up those papers, undoubtedly?

Mr. HARRISON. Yes, sir. There are many of these papers coming each day over the desk which I held. I reviewed these papers per-

sonally, and if they were large enough in amount, normally signed them covering other signatures.

The papers at that time would have been cleared by the Assistant Chief for Research and Development or the Assistant Chief for Material and Services, and in addition, the Director of the Plans Coordination Division made a note on these papers indicating the general position that his division took before they came to my desk.

Mr. HOLIFIELD. During that period of time which I have outlined, did you have conferences and approve papers of pertinence to the termination of the contracts with the McDonnell Aircraft Corp.?

Mr. HARRISON. I cannot at the moment recall a definite paper, but had any papers, termination papers, been issued during the time when I was on duty, they would have normally held my signature.

Mr. HOLIFIELD. Were there any termination papers during that period of time?

Mr. HARRISON. I don't recall definite papers on McDonnell Corp.

Mr. HOLIFIELD. Mr. McDonnell, were there any papers, contractual papers, either research, development, or production or any termination papers, that were executed by the BuAer during that period of time?

Mr. HARRISON. I believe there were.

Mr. MCDONNELL. Can the Chair please state the exact period of time, and Mr. Murray will answer.

Mr. HOLIFIELD. From September 1952 until July 31, 1955.

Mr. MCDONNELL. Mr. Murray, will you answer that?

Mr. MURRAY. In November 1953, under BuAer contract 52–204, the quantity of airplanes was reduced from 378 to 120, or a termination of 248 airplanes.

Mr. HOLIFIELD. Is that the only instance of termination during that period of time?

Mr. MURRAY. To the best of my knowledge, but I would have to re-search the file to be completely authoritative, sir.

Mr. MCDONNELL. We can give you an authoritative answer not later than tomorrow morning, not later than this afternoon, Mr. Chairman.

Mr. HOLIFIELD. Thank you. The committee will be glad to have that information.

Admiral Harrison, where are you employed now?

Mr. HARRISON. I am now employed in St. Louis as vice president, procurement, McDonnell Aircraft Corp.

Mr. HOLIFIELD. When did you start with the McDonnell company?

Mr. HARRISON. I started on Monday, the 1st of August 1955.

Mr. HOLIFIELD. You retired on the 31st of July from the Navy and you started work for them on the 1st of August?

Mr. HARRISON. That is correct, sir.

Mr. HOLIFIELD. Are you under contract with them?

Mr. HARRISON. No, sir. I have what amounts, I guess, to an oral contract.

Mr. HOLIFIELD. An oral contract?

Mr. HARRISON. Yes, sir.

Mr. HOLIFIELD. For a stated number of years?

Mr. HARRISON. No, sir. There is no term of the contract

Mr. HOLIFIELD. Did you apply for employment with McDonnell?

Mr. HARRISON. No, sir.

Mr. HOLIFIELD. Or did McDonnell come to you and offer you employment?

Mr. HARRISON. No, sir. My contact, first contact on the matter, was with Mr. McDonnell. Had anyone in January or February of this year indicated to me that he thought I would be in the employment of anyone in industry, I would have thought that he was risking a very improbable bet.

Mr. HOLIFIELD. So you were approached by Mr. McDonnell in March of this year, say, for the first time for employment?

Mr. HARRISON. The first approach was toward the end of March of this year, approximately 6 months ago.

Mr. HOLIFIELD. What is your title with McDonnell Aircraft Corp.?

Mr. HARRISON. Vice president, procurement.

Mr. HOLIFIELD. What are your duties under that title?

Mr. HARRISON. My duties are to handle at my level of responsibility policy matters and clearances, dealings with those people who supply material to McDonnell in satisfaction of requirements for what McDonnell produces.

In other words, there are about 2,000 to 3,000 individual subcontractors or suppliers with whom subcontracts or purchase orders are executed, and a group of people who buy this material from vendors is under my division of McDonnell Corp.

Mr. HOLIFIELD. Do you also deal with your former colleagues in the BuAer on Government-furnished material to McDonnell Aircraft Corp.? Is that part of your duties?

Mr. HARRISON. Within one of the purchasing units is a Government-furnished-equipment organization which stores and has custody of the Government-furnished equipment more or less in the same fashion as contractor-furnished equipment.

Mr. HOLIFIELD. During the time you were in the employ of the Government and during the time the termination notices crossed your desk, did you participate in making the decisions as to whether those contracts should be terminated at the convenience of the Government or at the default of the contractor on a performance basis?

Mr. HARRISON. In my position as deputy chief, I signed the papers which cleared a termination. Those papers stated whether the termination would be for convenience or default or any other wording involved.

My signature on that document indicated my subscribing to whatever decision had been made by the people who actually had made the decision when it came to my level of authority.

Mr. HOLIFIELD. In other words, the negotiating team that negotiated the termination papers prepared the termination papers after, I assume, negotiations with McDonnell on the pertinent points involved, came to a decision, and you as a responsible individual in the Navy placed your signature of approval upon that negotiated instrument.

Mr. HARRISON. It may well have been that no negotiations had been conducted by anyone with McDonnell at that point. Generally some information would have been required from the field as to the point at which a termination could best be made, some informal discussions leading to a termination.

These discussions which would ordinarily be conducted by those cognizant, which in this case would probably be the Procurement Divi-

sion of the Bureau of Aeronautics, would have resulted in the contract termination paper.

The method of determining the reasons stems from policy and procedural instructions in the armed services procurement regulations and the corresponding Navy regulations as laid down by the Assistant Secretary's office, and these papers going through would be routed through cognizant people such as the counsel of the Bureau of Aeronautics, which is another one of the activities directly under my purview, so that with these various signatures showing on route sheets and Assistant Chief signatures. I would review the thing as a sort of final check point to determine whether, in the time I had available, I could see whether this seemed a sound document and apparently in conformance with policy, and my signature indicated that I had given what review I could to that document, and considered it in due form correct.

Mr. HOLIFIELD. Now the subject has brought up in the last few days as to the termination of contracts at the convenience of the Government or on default. I think I made the statement from this chair that within my own knowledge it seemed that there were two different rules that applied.

One rule seemed to apply to the big corporations with the multimillion-dollar contract when it comes to termination, and other rules seemed to apply to smaller contractors.

In the one instance there seems to be a lenience, and I believe one of the witnesses testified that in many instances they have very competent legal counsel which the little contractor did not have.

What has been your experience in regard to termination of these large contracts at the convenience of the Government and holding the small contractor to the letter of his contract?

Mr. HARRISON. Within the aeronautical organization I possibly have more experience on this point than others because the things which came to my attention in detail were the problem areas, and I was particularly sensitive to a small-business problem because the things which were referred to from congressional level to the Bureau generally came to my attention, and I personally generally dealt with the appeals by small-business people in my own office when they had been forwarded down either directly to the Bureau or through the Assistant Secretary's office.

We endeavored always to take a little better treatment if we could of small-business people because we realized the limitations of their staffs.

The reason that default contracts were proportionately more numerous sometimes with small-business men was that the terms of the contract were usually such that there was no recourse to relieve a small-business man of the consequences of a contract entered into inadvisedly.

Mr. HOLIFIELD. In other words, the big corporations with their efficient legal talent were able to write contracts which gave them recourse, and the little contractor, not being aware of those types of legal advice, was, let us say, negligent of his personal interest and he signed a more drastic type of a contract. Is that apparently what you wish to convey?

Mr. HARRISON. No, sir. Reference has already been made in the hearings to this point of legal assistance, and it is important. But in my own experience, that was not the most important point.

The most important point was that the small contractor with a large appetite for business was more insistent on getting business over obstacles and undertook jobs which subsequent events proved he was incapable of performing.

We endeavored to screen these small contractors from this point of view. But the greatest amount of single effort and thoughtful effort engaged in by the troubleshooting activity in the contracting effort which was a very able young supply officer, who was in charge in the Contracts Division, in charge of policy, and myself with advisers was endeavoring to take care of situations where an individual felt that he had produced a valid bid and we were up against just this proposition of being pretty sure he couldn't produce.

And sometimes, faced with an award to a man who could produce, and then trying to explain why we were trying to protect this young fellow, this young businessman from difficulties which we felt sure would result in a default termination——

Mr. HOLIFIELD. You spoke of the small contractor who, for one reason or another, failed to produce the desired item. It seems that in this case the Westinghouse Co., in the case of a multi-million-dollar contract, failed to produce an item which the Navy wanted also, so the lack of ability to produce is not always confined, is it, to the small-business man?

Mr. HARRISON. By no means.

Mr. HOLIFIELD. And when the large man fails in his multimillion dollar contract, the settlement is at the convenience of the Government. But when the small man fails, the letter of the law is enforced; is it not?

Mr. HARRISON. No, sir. The letter of the law, the regulations are applied always in the interests of getting the job on the road and consistent with instructions.

In many cases it has proved unfeasible when some dereliction appears to be shared or owned entirely by a contractor.

Mr. HOLIFIELD. And in this instance we are assured that there is a high salvage value, but in other instances where small contractors have possibly passed naval specifications and have had their product stamped as approved, there is no salvage value to their items; is that so?

Mr. HARRISON. I don't understand your question, sir.

Mr. HOLIFIELD. You don't understand it?

Mr. HARRISON. No.

M. HOLIFIELD. All right, I will call to your attention the case of a Mr. X who produced an item, and according to the specifications of the contract, an the Navy put the stamp of approval, their inspection stamp of approval upon that. Later on this item was given certain performance tests and failed, so the Navy said to come up to their requirements, and in that particular instance the Navy did not settle the contract at the convenience of the Government, but they settled it on the basis, or their holding up payment on the basis of default.

Mr. HARRISON. Well, without some specific knowledge of the contract with which you are dealing, I can only answer conjecturally, of course.

The Bureau has dealt with such matters by close examination of the terms of the contract and the papers involved, records and so forth. There have been cases where, upon examinations of this sort, the Bureau felt it was constrained and had a duty to terminate for default.

Some of these cases have then been appealed and the judgment of the Bureau has been reversed by a review authority. This experience is part of that which is taught people in the Bureau dealing with such matters to learn by experience and use this interpretation of policy by review authority so as to determine the feasibility of an actual recovery of funds in default as against convenience, the definition of the thing as to whether it be default or convenience.

Mr. HOLIFIELD. Mr. Lipscomb, do you have any questions?

Mr. LIPSCOMB. Mr. Harrison, would letters such as the one written by Captain Murphy and Captain Sager come across your desk when you are with the Bureau?

Mr. HARRISON. Normally not. The Bureau has correspondence other than routine reports of the order of a thousand letters a day coming in, a thousand going out. Obviously, one individual cannot see all of these documents.

But those having exceptional characteristics would be screened up the line until the level of responsibility was reached where the individual concerned felt that he could handle it.

Mr. LIPSCOMB. You don't remember either Captain Murphy's letter of October 8, 1954, or Captain Sager's letter coming to you for action?

Mr. HARRISON. I have no recollection of having seen the letter personally.

Mr. LIPSCOMB. You did not make a decision on Captain Murphy's letter of October in any way?

Mr. HARRISON. No, sir. That would ordinarily be done by consultation between members of the Contracts Division of the Bureau and counsel for the Bureau.

Mr. LIPSCOMB. Thank you.

Mr. HOLIFIELD. Mr. Roback.

Mr. ROBACK. Admiral Harrison, did you ever have occasion to discuss within BuAer the question of terminations of either the Westinghouse or the McDonnell contracts?

Mr. HARRISON. Would you repeat the first part of your question?

Mr. ROBACK. Have you ever had occasion within the Bureau of Aeronautics to discuss the question of termination either of the engine or the airframe contract under discussion?

Mr. HARRISON. Yes, sir.

Mr. ROBACK. Had you at any time ever differed with anybody at policy level in the Bureau on that point, on that subject?

Mr. HARRISON. As to whether there should be default?

Mr. ROBACK. As to time, as to method, as to amount?

Mr. HARRISON. Most of the important terminations I discussed with people who had prepared the documents. They would ordinarily have come to me last from the Plans Coordination Division of the Bureau who would make a comment as to whether they thought these were in due form and so on. So I would ordinarily have had a discussion either before I received the document or at the time.

In other words, a simple looking at the paper was not the usual way of doing things.

Mr. ROBACK. Can you recall whether you ever took issue, whether you differed with anyone in the Bureau on a policy level with respect to the time, amount, or method of termination in either the engine or the airframe contracts? That is a repeat of the question I asked you a moment ago.

Mr. HARRISON. I cannot recall a discussion of this sort with regard to the airframe termination.

In connection with certain engine terminations with Westinghouse, there have been quite a few discussions as to the level and timing of the thing.

One of the reasons for such discussions has been that instructions exist for the clearance of what might be termed catastrophic terminations, that is those having strong industrial impact, at secretarial level, and it has been necessary to secure information and have discussions at that point in addition to the normal one in the Bureau in questions of that sort. For example, before the final termination of all Westinghouse production contracts, it was necessary to advise higher authority in such matters.

Mr. ROBACK. Had anyone in the Bureau of Aeronautics ever recommended termination of any of these contracts before the times they were terminated?

Mr. HARRISON. Before the time they were terminated?

Mr. ROBACK. That's right.

Mr. HARRISON. I cannot recall specific instances, but I am sure that in the 1,500 to 2,000 people in the Bureau of Aeronautics, at some time probably said, "Let's cancel these folks," long before their seniors in administrative responsibility agreed with them.

Mr. ROBACK. Has it ever been communicated to you by anyone in the Bureau that these contracts should be terminated before the time that they were terminated?

Mr. HARRISON. There have been discussions in which I participated of the whole Westinghouse problem. It was reviewed over a period of years whenever I was in the Bureau.

Mr. ROBACK. Mr. Chairman, will you make a determination whether the witness is responsive to the question?

Mr. HOLIFIELD. The Chair does not believe that the witness has answered the counsel's question. The question was, Did you disagree with people in a high-policy position who had under consideration the termination of either the airframe or the engine contracts? Were you in disagreement with them? Did any of these other people advocate earlier termination or a different method of termination such as default rather than convenience of the Government?

Mr. HARRISON. I do not recall serious discussions of default terminations at the time when the papers finally came to my desk, thinking of the engine situations.

Such discussions were had during the preliminary operations, and the questions were entered into as to whether this sort of thing could hold as a default termination.

The point at issue is precisely this: A contract called for delivery of an item according to a specification at a particular time. If the contractor fails to meet this delivery, the Government has the right to terminate, and often the duty to terminate.

This contract situation routinely becomes threatened early in the production cycle. By periodic reports such as the biweekly reports which the Bureau of Aeronautics representatives send in, predictions of schedule slippage come to attention periodically, caused by various reasons, including those assignable to the contractors. When slippage has become a firm expectation, if the Bureau on its contracting side accepts the slippages and reschedules the operation, there is implicit in such action in most of the people reviewing the situation a curing of the fault so that the new date which eventually is written into the specification in due time becomes a new date in the contract.

Mr. HOLIFIELD. It becomes an adjustment of the contract in point of time of delivery; is that right?

Mr. HARRISON. Will you say that again, sir?

Mr. HOLIFIELD. It becomes an adjustment of the contract.

Mr. HARRISON. That is right.

Mr. HOLIFIELD. In point of time of delivery.

Mr. HARRISON. It becomes a contract change.

Mr. HOLIFIELD. All right. Now let's go from the time element to the specifications. If the contractor meets the specifications, the engineering specifications, but the performance of the engine does not meet the performance requirements, then is there an adjustment due the contractor on the basis of a lack of fulfillment of performance requirements?

Mr. HARRISON. Yes, sir. In case the contractor fails to fulfill any requirement on time, the Government then has a right to terminate for default.

If they terminate for default, they lose access to the material, which is potentially contractor's inventory then, and go through or are faced with going through a legal determination, usually under protest by the contractor, as to whether the thing is a default or not, so that the difficulty——

Mr. HOLIFIELD. But you can terminate on default if the item fails to qualify on the performance requirements, can you not?

Mr. HARRISON. That is right.

Mr. HOLIFIELD. And you frequently do terminate on that basis, do you not?

Mr. HARRISON. Frequently? I don't think that the terminations for default have been frequent.

Mr. HOLIFIELD. There have been terminations on default when the engineering specifications of the Navy have been met and where later on there was some question as to performance by other types of tests; have there not?

Mr. HARRISON. I cannot cite instances.

Mr. HOLIFIELD. You are sure of that?

Mr. HARRISON. No, sir; I am not.

Mr. ROBACK. Mr. Chairman, I submit that I don't have an answer to my question and, if you wish, the Admiral can refresh his memory perhaps over the lunch hour. We can adjourn and then resume.

Mr. HOLIFIELD. Will you restate your question?

Mr. ROBACK. My question is as follows: Have you ever differed with anyone on the policy level in the Bureau of Aeronautics with respect to the time, the method of termination, and the amount of termination, with respect to either the engine or the airframe contracts?

Mr. HARRISON. I cannot cite individual instances, but I am sure that I have discussed these matters with individuals on many contracts.

Mr. ROBACK. Have you ever discussed the matter with Admiral Soucek?

Mr. HARRISON. Critical matters are regularly discussed with the Chief of the Bureau.

Mr. ROBACK. Did you ever discuss with Admiral Soucek the question of the termination of the J–40 contracts?

Mr. HARRISON. The whole Westinghouse situation we frequently discussed with Admiral Soucek.

Mr. ROBACK. Admiral, did you ever discusss with Admiral Soucek the question of the termination of the J–40 engine contracts?

Mr. HARRISON. I cannot cite the instance of an individual thing, but I am sure that I discussed such subject with him.

Mr. ROBACK. Did you ever take issue with Admiral Soucek as to the question of terminating the J–40 contracts?

Mr. HARRISON. Yes. I say I cannot give exactly the details of these particular discussions.

Mr. ROBACK. What was your position in relation to his?

Mr. HARRISON. What is that, sir?

Mr. ROBACK. What was your position in relation to Admiral Soucek's with respect to the termination?

Mr. HARRISON. Admiral Soucek was Chief of the Bureau. I was his deputy, and the one of most experience in the Bureau in these matters, to whom he would look for advice in matters concerning which he was not certain, and I would endeavor to give him my independent, unbiased judgment.

Mr. ROBACK. How did you advise him with respect to those contracts, with respect to the matter of termination of the J–40 engine contracts?

Mr. HARRISON. I advised him in general, speaking of several contracts, with him as to the general status of the contracts; I advised him of the feasibility of termination, and the consequences, the implicit effect of extensions which we had had; the fact that the contractor would have the ability to try again to meet a date given in our schedules, and whether in the long run we would save money for the Government by termination as of a certain point for some particular reason, or waiting to a later determination after the contractor had a chance to choose to cure the particular defect we might then be considering.

Mr. ROBACK. Can we infer from what you have said that you were opposed to the termination of the J–40 contracts at a point earlier than they were terminated?

Mr. HARRISON. I would say that it is probably true.

Mr. ROBACK. Had you discussed the question of the termination of those contracts with anyone in the Department of the Navy above the Bureau of Aeronautics?

Mr. HARRISON. I cannot recall with definiteness when and where each of these discussions took place, but I do recall certain conversations with one of the Deputy Chiefs of Naval Operations for Air on such matters, and I made reference to these matters with representatives of the Chief of Naval Material from time to time.

Mr. ROBACK. Did you ever make any representations to the Office of the Chief of Naval Operations or of Naval Material that these contracts were to be continued rather than terminated?

Mr. HARRISON. I would say that the answer to that question in the broad sense is "No." Such discussions as I had in this area were relating to time and feasibility in these matters. The real issue in this particular area is one of the utilization of the product in an airplane, and the programing of the airplane deliveries, getting the number of engines ready for the airplanes, and so forth, were the matters which really determined dates and things of that sort.

Mr. ROBACK. Do you have any means of refreshing your memory with respect to areas you haven't been able to recollect?

Mr. HARRISON. It is possible by a close review of routing sheets, including some written comments, that some individual instances could be discerned.

Mr. ROBACK. Since you have been associated with McDonnell, have you had occasion to confer in a business way with anybody in the Department of the Navy?

Mr. HARRISON. No.

Mr. ROBACK. Do you intend to do so if the occasion comes up?

Mr. HARRISON. Would you say that again, sir.

Mr. ROBACK. Do you intend to make such discussions or conferences if the occasion requires it?

Mr. HARRISON. The position which I have with McDonnell Corp. and my responsibilities there have no relation to the contracting dealings with the Bureau of Aeronautics or the Department of the Air Force.

My functional performance in the company has the same relation with the vendors as had my position in the Bureau of Aeronautics in relationship to the contractors. In other words, there is no question, in my opinion, as to illegality, impropriety, unethical relation, in this matter.

Furthermore, I believe if the committee wishes to examine into this aspect of the situation, that it will be convinced that the situation in which I am placed in my relationship to the Government and to the contractor and to the vendor could, and preferably should, be duplicated many times in the national interest.

It is true that my own evaluation is a minor matter compared with the more profound matter which the committee is examining. But the fact that in the public press my connection with McDonnell has been publicized at the same time that these deficiencies in achieving desired ends have been publicized, makes it, I think, desirable that this matter be examined fully as to what I do with McDonnell and what my relationship is to the Government.

In other words, the contracting agency within the company exemplified here by Mr. Murray, principally, is one of contractor to the man in the Bureau who has a contract to let. In the case of the McDonnell Corp., its designs have earned a larger need to subcontract than any other of the fighter plane manufacturers, I understand. At any rate, there is a multimillion-dollar responsibility for subcontracting.

McDonnell deals with many vendors, two to three thousand vendors. About half of these or more, more than half, many more than half are small business people.

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To insure that the desires of the Congress as passed on to the contractors in contract documents, clauses and conclusions are placed in effect in the procurement relationship of the company, requires a rather considerable knowledge of what is needed, what policy is.

McDonnell was asked to nominate a representative, for example, to the Air Force Advisory Committee on Small Business Matters, and I was nominated for that particular position and representation. The ability to know how the Congress, how the Department of Defense, and the Navy desire relationships conducted is valuable to a contractor.

For approximately 7 of the last 9 years, I have had a rather direct relationship and a growing educational experience in this matter. When a case so pure from any question of duality of interest, when a case of this sort is available, that experience, which the taxpayer has paid for, ought to be used where a position is to be filled in the field needs filling.

And I feel that this case should be so examined and viewed by the committee and, if necessary, if it is thought wise, to publicize, to make clear that there is a market in the national interest in a small way for passing on the experience built up in military personnel when they come to retirement age.

I was retained for 2 years beyond my normal retirement age under the selective system which the Congress, in its wisdom, has approved by legislation on Department of Defense request.

I was in the second year of this period when I actually became retired. But many other people in similar positions hesitate to accept positions, not having such a pure relation, let us say, or contractors needing such people are reluctant to accept them because of their unwillingness to worry about the proposition of wonderment as to what the relation is.

It is a clean relation. It is in the Government interest to have such a relation, and I hope the committee goes into it well enough to satisfy itself, indeed, that this is the case.

Mr. ROBACK. Have you completed your statement as to your position in this matter?

Mr. HARRISON. Will you say that again?

Mr. ROBACK. Have you now completed your explanation of your employment relationship in this matter?

Mr. MCDONNELL. Mr. Chairman——

Mr. HOLIFIELD. Just a minute, let Admiral Harrison answer the question. Did you understand the question, sir?

Mr. ROBACK. You wished to make a statement. Have you now completed it?

Mr. HARRISON. Yes.

Mr. HOLIFIELD. Mr. McDonnell did you wish to say something?

Mr. MCDONNELL. I would appreciate the opportunity to make a brief statement of 2 or 3 minutes on this subject either now or after lunch, if I might.

Mr. HOLIFIELD. We will adjourn at this time, and you will be given opportunity to make a short statement, and then we will have the Westinghouse people on the stand.

We plan, if possible, to close the hearings tomorrow evening if we can clear up certain things. The different witnesses will be called

back, and those witnesses wishing to appear from Westinghouse will be given an opportunity this afternoon.

We will adjourn at this time and reconvene at 1:30.

(Whereupon, a recess was taken at 12:15 until 1:30 p. m. the same day.)

AFTERNOON SESSION

Mr. HOLIFIELD. The subcommittee will be in order. Mr. McDonnell, I believe you had requested permission to make a short statement right before we recessed. You may proceed.

FURTHER TESTIMONY OF J. S. McDONNELL, PRESIDENT, McDONNELL AIRCRAFT CORP.; ACCOMPANIED BY J. F. ALDRIDGE, VICE PRESIDENT FOR SALES AND SERVICE; D. P. MURRAY, MANAGER OF CONTRACTS; R. J. BALDWIN, CHIEF SYSTEMS ENGINEER; AND H. EARLE MOORE, QUALITY CONTROL MANAGER, McDONNELL AIRCRAFT CORP.

Mr. McDONNELL. Thank you, Mr. Chairman. I think 3 or 4 minutes will do it.

What I wanted to bring to the attention of the committee is the important problem of suitably using in our country the valuable services of able officers retiring from the armed services after many years of self-sacrificing service.

I was personally prejudiced on this for 16 years of our company's existence. We had never employed such an officer. I felt that if we did it would lead to unnecessary criticism. It would be subject to suspicion, even though it was absolutely open and aboveboard.

Finally, last February, our company had a real need for an additional executive. There is a shortage of good executives in this country, and I retained an executive employment agency of the finest national type, and after 2 or 3 months they had come up with no candidate for this position that I considered good enough for it.

So I personally studied the matter of the case of retiring officers of the armed services. I found many, many examples in industry, which I will not take the time of the committee on. I might just mention one, however.

One of the largest companies at present as its president and chief executive officer has a former four-star general of the Air Force. Another company has as its executive vice president the former Secretary of the Army in President Truman's administration. Another company that came to my attention had a former rear admiral of the Navy doing good service as a vice president.

So I further examined what is the problem of these officers. I think if Admiral Harrison will pardon me, I might mention the specific case involved there. It is more or less typical.

Here was an officer who had rendered 39 years of service to the Navy. He had a family of five, including himself. The retirement pay for such an officer—I don't know the exact figure, I had it at the time—it is something on the order of eight or nine thousand dollars per year.

This able officer had 3 children, of which the youngest was 14. What can an officer do like that when his time comes for retirement?

That gave me a different viewpoint, and I began to feel that American industry and American business owe a duty to these people who serve so well and so long in our armed services, to try to get them into employment where they are capable of doing it and where they can solidly earn their own way.

So in this particular case, after examining the laws and regulations and ethics on the subject, I first approached Admiral Harrison on Friday, the 30th of March, and he indicated that his retirement might not be long away, and he made no commitment. He said he would give the matter consideration.

He made his commitment on the 1st of July 1955 and reported for duty the 1st of August 1955.

What duties were we able to find that in no way compromised his position? As he has previously mentioned, we had a growing problem of dealing with about 3,000 vendors, the majority of them small businesses. It takes a lot of time for an able person.

What are the qualifications required for an executive holding that position? He must be honest, he must be of the highest integrity. There must not be the slightest question in that respect. And I personally, from my knowledge of a lot of people, picked out Lloyd Harrison as being of the finest qualifications in that respect.

And I take full responsibility for having taken the initiative, shown him how he could serve in a way that would not embarrass any of his former associates in the Navy, and this was what in the business world we call, and it is legally called, an arm's-length negotiation.

In 16 years I have never had any extensive negotiations with this officer relative to any of our Government business, and in each and every case there were other witnesses present.

We have never been personal or family friends except that since Lloyd Harrison has come with our company on the 1st of August, I have come still more to admire his sterling qualities and a warm friendship has developed in the past 3 months. It was of great help to our company.

We had searched the country trying to find, from the ranks of industry, someone we could employ without it hurting that other business. It is all open, it is all aboveboard.

At the time when he came to us on the 1st of August, we would have each preferred to have given the press a release on it to publish, but it didn't seem to us that it was really appropriate to do it. If we had, the press would have buried it, I am sure they would tell you, on a deep inside page with 3 or 4 lines.

We deeply welcome this opportunity to give this full explanation to this committee. That completes that, and I can now report to the Chair concerning the terminations that have taken place during the period of time that was inquired of before lunch.

Only the X–HRH–1 was completely terminated. If that contract had been completed, it would have cost the Government at least $15 million additional.

The X–HCH–1, cargo crane type helicopter was a partial termination. You might say roughly it was reduced—these are very rough figures—by about $1 million. The F3H, that is Navy contract 53–204, was reduced in number from 378 to 130, and the F3H–2P, photographic version, was completely terminated.

If those contracts had been completed as written, they would probably have cost the Government for the airframe company alone about $200 million additional.

Two naval air maintenance trainers were terminated. It would probably have cost the Government $600,000 more.

There was eliminated item 6 of letter of intent, 53–204, which provided for liaison with Temco Aircraft under licensee-licensor agreement. That, Mr. Murray, is a complete and official list?

Mr. MURRAY. Yes, sir.

Mr. MCDONNELL. This will be handed to counsel if he desires. Thank you very much.

Mr. HOLIFIELD. Thank you.

In response to the first part of your statement, let me say as the chairman of this subcommittee that the subcommittee has the highest respect for you and the other members of your company, including Admiral Harrison.

It is our duty to inquire into the termination of these contracts and those who participated in it. The chair is not going to sit in judgment on the conscience of any witness at this time or in the future.

The question of conflict of interest has been with us as long as the Republic has stood. There are statutes on the book in regard to conflict of interest, as you well know, and there are moral and equitable principles involved which are not matters of legality.

The very fact that you mentioned a number of people going from the armed services into industry is verified by a list that I have here of 34 admirals and generals who have upon either voluntary or enforced retirement taken important places in industry.

I am not passing judgment at this time nor is it the subcommittee's function to pass judgment on the equity of that matter that is involved. Other committees of the House and of the Senate are inquiring into the suitability of the procedure which is going on where men who have to sit on both sides of the table at the same time sometimes have a conflict of interest, or they may sit on one side of the table for a while and know that they are going to sit on the other side of the table later on.

The principle of loyalty to one master is a pretty well-established principle in our society. The principle of divided loyalty is a principle which none of us believe in, and it is up to the individual in most instances to determine where the area of conflict of interest begins and where it ends.

This chairman, and I am sure the members of this committee, have no desire to set ourselves up as judges in this field. We have the highest respect for you and Admiral Harrison and the other witnesses that appeared before us.

Now are there any questions which any member of the committee wishes to ask?

Mr. HOFFMAN. I would like to call attention to the fact that many a Congressman—and some of them are outstanding—for instance, Mr. Woodrum from Virginia here, presidential size that man was, he retired from the Congress to private employment. Mr. Ramspeck did, and so on down the list. I see nothing wrong with it, as you said.

I think it is a question for the individual at the time. If there is a conflict of interest, of course, they shouldn't do it, but where there

isn't, I can't see anything to it. There are many Members of Congress, including Senators, who when they are elected open a law office down here and remain as a figurehead. Well, that is their business and not ours.

Mr. HOLIFIELD. That's right. I am glad that my colleague and I are in agreement on this point.

Mr. HOFFMAN. We are on all fundamental issues, I think.

Mr. HOLIFIELD. I think so. Mr. Lipscomb, do you have questions?

Mr. LIPSCOMB. No.

Mr. HOLIFIELD. Mr. Roback has some questions I believe. I understand there has been an agreement that the Westinghouse people will be placed on the stand at this time, and we thank you for your testimony, and we will excuse you for the moment.

Mr. MCDONNELL. Thank you, Mr. Chairman, for your fairness.

Mr. HOFFMAN. There is one question that came up in connection with their testimony, but I think it would be more properly addressed to Admiral Russell, that is with reference to the change.

I wanted to just ask if there wasn't some similarity between the policy of the Navy trying to keep ahead all the time and the policy of the manufacturers of automobiles, let us say.

Now they are discarding a world of equipment, I assume, machinery and tools and their old models of 1955, which are wonderfully fine, and then they are stepping into the 1956 which I can't buy, and they are wasting all that.

There is some similarity in the Navy in trying to keep ahead of our enemies where the automobile fellows are just trying to keep me ahead of the other fellow or him ahead of me.

Admiral RUSSELL. Yes, sir; it is a very highly competitive business and it behooves us to be out in the forefront at all times. Our competition, I think, is a little more serious than that in the automotive field.

Mr. HOFFMAN. Yours involves the safety of the Nation and the lives of our people, while all that theirs involves is the dollars and cents and profits and so on.

Admiral RUSSELL. That's correct, sir.

Mr. HOFFMAN. There was one other thing. I noticed as I came through the Capitol this noon apparently some concern is making a picture over there, and I noticed personnel from the Pentagon, and I assume they are on the payroll. I wondered how many Navy men go over there and what the expense of having our fellows over there helping them make that picture is.

Admiral RUSSELL. Facetiously I should say if they are from the Pentagon, heaven forbid, they should be back at their books or somewhere.

Mr. HOFFMAN. You don't know how many men you have over there?

Admiral RUSSELL. I don't know if we have any.

Mr. HOFFMAN. One of the Capitol Police called my attention to it and said, "Those fellows from the Pentagon are getting their meals this noon free and I had to pay for mine." He said, "Don't you think there should be an investigation?"

Admiral RUSSELL. To the best of my current knowledge, sir, there is no one from the Bureau of Aeronautics over there.

Mr. HOFFMAN. No one that had anything to do with the planning of this anyway.

Admiral RUSSELL. No, sir; not this one.

Mr. HOLIFIELD. Mr. Smith and Mr. Wells of the Westinghouse Corp. Will you gentlemen, each of you, identify yourself to the reporter? Give your position.

Mr. SMITH. I am W. W. Smith, division manager of the aviation gas turbine division, Westinghouse.

I have with me Mr. Howland, assistant general counsel for the corporation; Mr. Wells, one of my administrative assistants; Mr. Mathias, who is project engineer on the J–40 engine.

Mr. HOLIFIELD. Do you and each of you swear that the testimony that you are about to give this committee will be the truth, the whole truth, and nothing but the truth, so help you God?

Mr. SMITH. I do.

Mr. WELLS. I do.

Mr. HOWLAND. I do.

Mr. MATHIAS. I do.

Mr. HOLIFIELD. Thank you. Be seated. Mr. Smith, do you have a prepared statement you wish to make?

TESTIMONY OF W. W. SMITH, DIVISION MANAGER, AVIATION GAS TURBINE DIVISION, WESTINGHOUSE ELECTRIC CORP.; ACCOMPANIED BY JOHN L. HOWLAND, ASSISTANT GENERAL COUNSEL; R. L. WELLS, ADMINISTRATIVE ASSISTANT TO W. W. SMITH; AND RUSSELL MATHIAS, PROJECT ENGINEER ON THE J–40 ENGINE

Mr. SMITH. I do, sir, and if it please the committee, I should like to read it, and then I shall do my best to answer questions if you have them.

First I should like to thank the committee for this opportunity to present our story. I hope that we may be able to answer any questions that you may have.

Mr. HOLIFIELD. When you read your statement, would you speak a little louder, Mr. Smith, so we can hear you better?

Mr. SMITH. I have a voice, unfortunately, that does not carry very well, so I shall do my best.

I do not want to take any undue time to cover the history of Westinghouse in the jet-engine field, which is still a young industry, but for you to properly evaluate our experience with the J–40 engine it is necessary to report briefly on the events which led to its development.

Westinghouse was officially assigned by the Navy on December 8, 1941, to develop a turbojet engine for naval aircraft. We were asked to do this without any knowledge that a British engine was being developed and without benefit of any prior outside design work.

Employing experience gained by having invested considerable design effort in the development of steam turbines, Westinghouse designed and built the first American turbojet engine—the 19A Yankee. In creating this engine, our engineers developed the axial-flow design which permitted the use of narrow diameters in engine construction and greater streamlining. The British engine under development at that time employed a centrifugal-flow compressor which resulted in a bulkier engine.

The axial-flow design was an outstanding contribution to the art of jet-engine construction and now is universally employed.

An improved version of the engine, the 19B, powered the successful McDonnell Phantom planes. I might add the original 19A is now in the Smithsonian Institution, attesting to its significance in America's entry into the jet-engine field.

Westinghouse designers then turned to an advanced version of the 19B, the J–30. This was the first turbojet to pass the Army and Navy 150-hour qualification test and was approved for quantity production in December 1946. Two hundred and sixty J–30's were delivered and lasted 8½ years in service operation, a remarkable performance record. Half of these engines were made by Westinghouse and half by another American company as its initial venture in the jet-engine field.

Meanwhile, on June 16, 1944, we had received a contract for development of the J–34, and the production engine was qualified in October 1947. The J–34 has a reputation of being one of the most reliable engines ever built, and the plane it powered—the famous McDonnell Banshee F2H—was described shortly after the Korean war as the finest naval fighter to reach combat. The Banshee, with its J–34 engines, fought extensively in the Korean war and came out with an excellent record of combat availability and dependability. It is important to remember that the period of the J–34's development and production was still in the very early days of jet propulsion. Even today the industry is not out of the pioneering stage.

Mr. HOLIFIELD. Will you stop just a minute, sir? For the benefit of the press, the changes in the date from June 1948, in this prepared statement, to October 1947, and the introduction of the word "production" in front of "the engine" was given to the committee before Mr. Smith started reading. It was a typographical correction which he made before he started reading, and if your copies do not have those dates, please make note of the changes.

Mr. SMITH. Mr. Chairman, if I may also point out another correction on the first page, it should be "steam turbine" instead of "gas turbine."

Mr. HOLIFIELD. That also was on the corrected statement. Now you may proceed, sir.

Mr. SMITH. As evidence of the J–34's satisfactory performance, our aviation gas turbine division produced 4,560 of them and approximately 3,700 are still active. A second American manufacturer entered jet-engine production with a small number of J–34 engines.

I am recounting the records of these earlier engines, and Westinghouse contributions in the pioneering of American jet-engine manufacture, only to demonstrate that both Westinghouse and the Navy had every reason to expect equally successful results when we began the development of a new and more powerful engine. I would like the subcommittee to understand that the design and production of jet engines is an exceedingly complicated and difficult process, and our company has not been alone in encountering development problems.

When we originally undertook the development of the J–40 engine on the heels of the highly successful J–34, we believed that the larger engines would be susceptible to the same rapid and satisfactory development.

Several versions of the J–40 were contemplated, including the J–40–6 and –8, and a higher powered model, the –10.

I should like to mention at this point, if I may, not in my text, something that I don't think has been clear heretofore. The J–40–6 and –8 engines and the –22A and –22's are of the same configuration and, with the exception of the –6 which was nonafterburning, are of the same thrust rating and general specifications.

They differed in accessories and such items as that, but the –10, although it was of the same frame size and to go in the same hole in the airplane, was a completely different engine. It had a different compressor, it had a different turbine, and I think this point has not been made clear in the past.

I don't think it was intentional, but I think it just did not come out, and I wanted to make it clear here because as I go on mentioning these dash numbers, it should be kept in mind that the first family of engines, the –8, the –22A, and the –22 were the same engine with the exception of such accessories as generators, fuel controls, and such things as that.

But the –10 and later the –24 were a completely different engine even though they were all called J40's.

Thank you for allowing me to interrupt.

The Navy was particularly interested in the latter model because of its higher thrust. At this time there was no other American engine in the J40's thrust class.

The J40 engines were intended for use in several Navy combat aircrat then under development, one of which was the McDonnell F3H Demon.

The J40–10 was slow in coming along and, in face of the Korean war urgency, it was decided to bring through a modified production version of the J40–8, designated the "J40–22," and to follow with a higher powered version, known as the J40–24. The J40–22 was intended to be only an "interim" engine to power the early F3H aircraft for flight test and development work until the more powerful J40–24 engine became available.

As further development work proceeded, we again encountered problems which delayed progress on the higher thrust engine. Primarily, we had difficulty in achieving satisfactory fuel consumption for the J40 engines.

I would like to comment at this point that the limitations of the J40 engines have been grossly exaggerated in public reports, primarily statements that planes powered by the engines "won't fly." For example, during the first year of XF3H flight operations, over 100 flights were made with J40 engines. The weight of these planes was approximately 22,000 pounds.

Planes powered by J40's not only will fly but some have flown exceptionally well. For example, in the Douglas XF4D Skyray, a J40 engine set two new speed records in October 1953, one for a straightaway course and the other for a closed circuit. This was the first time a Navy carrier-based airplane had ever held the world speed record, although the record was subsequently surpassed by an Air Force fighter. Another and perhaps more significant example of performance was set when a J40-powered F3H Demon established a new rate of climb record early in 1955.

Perhaps even more serious, and in this paragraph I do not wish to start any arguments, I simply wish to point out our position, perhaps more serious than the claim that the F3H planes "won't fly" with the J40's are reports that fatal crashes of these planes have been caused by engine failures. While only official Navy flight-test records can be the final source of information on such crashes, I would like to strongly emphasize that Westinghouse records show no instance in which a crash resulting in injury or death of a pilot could be directly attributed to the failure of a J40 engine.

Nevertheless, largely because we underestimated the magnitude of the task we had undertaken as a result of our earlier successes, our development work was delayed to the point where it became obvious that the J40–24 would not be available in time for the Demon. Meanwhile, another engine of the power desired was becoming available from another manufacturer. Therefore, the development contract for the J40–24 was canceled in September 1953. At the same time, part of the production order for the J40–22 engines also was canceled.

A limited number of the J40–22 engines was left on order so the Navy could have engines available for flight test, pilot training, and equipment testing during the time the Navy was waiting for the other engine—the J71—to become available.

On this basis production of the J40–22 as a temporary engine was undertaken and first deliveries of the engine were made in November 1953.

The first flight of the J40–22 engine occurred on December 24, 1953, in an F3H, weighing approximately 29,000 pounds.

Flights with the J40–22 continued until July 7, 1955, when the last flight was made and when the Navy decided it would not need the engines that were left on order in September 1953. Accordingly the additional cancellation was made on July 28, 1955.

Following the final cancellation, the only production activity remaining on the J40's was a "cleanup" program to deliver the engines that were on the production line at the time of cancellation, some of them to be delivered to the Navy in an "as canceled" condition, with little or no further work to be done on them. The final cleanup of J40 work is being finished this month. All in all, we have completed and delivered 107 J40–22 engines.

Let me point out that in the production of all jet engines for the Government the manufacturer is required to put the engine through a rigid acceptance test specified by the military services. If any engine tested does not meet the requirements of the acceptance test, it is not delivered to the Government. All Westinghouse J40–22 engines delivered to the Navy were so tested, and all of them met or exceeded their guaranteed thrust.

It is true, and we are certainly willing to admit it, that this engine program moved slowly in face of the urgent Korean war emergency when the emphasis was on speed, and this slowness was delaying the Navy's program. Five factors contributed to the problems we encountered in successfully developing the J40 engine, all of which have since been corrected:

1. A lack of technical manpower on jet-engine work. We did not expand our engineering staff fast enough.

2. We lacked experimental parts development facilities and manpower which we know now are vitally important to successful development work in jet engines.

3. We had placed inadequate emphasis on the basic aerodynamic aspects of research, no doubt because of some complacency resulting from our almost immediate success with the J30 and J34 engines.

4. We had too few "house," or experimental, engines for test work.

5. Our operations were too widely scattered for most effective performance. Our development facilities were at South Philadelphia, Pa., and our production facilities at Kansas City, Mo. Our flight-test facilities were in three wide-apart locations—Delaware, Texas, and California.

Every one of these unsatisfactory situations was recognized and steps were taken to correct them, as follows:

1. We have built up our technical manpower and facilities in both numbers and quality.

We entered into an agreement with Rolls-Royce to bring to this country the best of the design work and development of this outstanding British jet-engine producer, and the right to incorporate it in such of our engines as would benefit thereby. This arrangement brings to the services important information not previously available and also information that supplements American know-how.

2. At a cost of $3¼ million of Westinghouse money, we built a complete experimental shop at Kansas City and staffed it with skilled people. The experimental shop has been given separate production and purchasing operations so that it will be completely free of production pressures.

3. We are putting $9 million into new and improved laboratories to provide necessary basic research as well as to serve important phases of the development program. These facilities include a new high-power laboratory for research in compressors, turbines, and combustion chambers; and low-power laboratory for reseach in smaller com-components, such as fuel pumps and controls.

In addition, we have set up a separate, independent advanced-development department, free from both engine production and development work, to concentrate on improvement in fundamental designs and better components.

4. Programs on future engines, including our new PD33, include plans for an adequate number of test and experimental engines.

5. We now have a fully self-contained operation at Kansas City. All of our facilities have been moved to Kansas City, which will result in a more effective and economical operation. We have a fully activated flight-test facility within 20 miles of our Kansas City jet-engine plant, solving the problem of widely scattered flight-test facilities.

All in all, Westinghouse is putting $12½ million of its own money into new research, development, and experimental facilities at the Government-owned Kansas City plant.

Another $8 million of our own money has gone into development of a new engine, in which we have complete confidence—the new PD33. It is much lighter than any other engine for its power, and is alone in its class as the most advanced engine in its thrust range. This engine already has passed its first 50-hour endurance test with flying colors, and now has completed more than 80 hours of development testing.

We cannot speak for the Navy, of course, but I would like to point out that in view of the Westinghouse achievements in the jet-engine field and our company's long record of serrvice to the Government, it was not unnatural that the Navy would have confidence in our ability to come through and would continue to support the J40 program to the utmost. I am speaking of such jet-engine achievements as:

1. The original concept and design of axial-flow engines—now the standard of the industry.
2. Powering the first all-jet Navy fighter.
3. Developing the first successful afterburner.
4. Developing the first 10,000-pound thrust engine qualified by the Defense Department.
5. Developing the first engine to bring the world's speed record to a carrier-based fighter.

Given time for further development work, we are quite certain that the engine shortcomings would have been resolved. Furthermore, without the experienced gained from these and our earlier engines, we could not have developed the PD33 in so short a time and with such conviction that it would be a success.

We firmly believe that the Westinghouse aviation gas turbine division is in better position than ever before to serve the military services and the aviation industry. The organization that has been through the experiences I have outlined, both achievements and difficulties, has increased in strength and in seasoning. Westinghouse is an important competitive element in the jet-engine business and our new engine programs hold promise of valuable contributions to national defense and the aviation industry. Only by having several strong competitors in the business will the country receive the benefits of technological and economic progress.

Westinghouse total profits in the 15 years since 1941 from the jet-engine business are far less than the $20 million Westinghouse has invested of its own funds in the past 2 years in this business.

Thus the financial return has been far from satisfactory. Yet we are prepared and ready to continue in the jet-engine field, with confidence that, with our new and excellent design and production facilities, Westinghouse can competitively resume its favorable place in the jet-engine picture.

Mr. HOLIFIELD. Thank you, Mr. Smith, for your prepared statement.

Mr. Balwan, do you have some questions at this point?

Mr. BALWAN. Mr. Chairman, at many points in the statement you referred to the J–40 engine there generally without specifying which it is.

Mr. SMITH. I realized that after I was reading it, sir.

Mr. BALWAN. And we have been throwing around a lot of these dash numbers.

On page 4 of your statement you say:

> For example, during the first year of XF3H flight operations, over 100 flights were made with J40 engines.

Which J40 engines?

Mr. SMITH. That was the J40–6 and –8, I am sure, in the original XF model, and I point out again that the –6 was without afterburner and the –8 was with afterburner, the only difference.

Mr. BALWAN. And you have a significant sentence after that:

The weight of these planes was approximately 22,000 pounds.

Did you, when you designed the –6 and –8, know that that had enough thrust to push a 22,000 plane through the air through the required maneuverings?

Mr. SMITH. I believe, sir, that when engine designs are laid down, we seldom know what the weight of the airplane is going to be. We don't know whether they will be used as a single engine, as a twin engine.

That particular point I don't believe is taken into consideration. We design for a certain thrust and fuel consumption point and the airframe maker decides whether he needs 1, 2, or more engines to carry his design.

Mr. BALWAN. You merely have a contract with the Navy to produce an engine of a certain size, weight, thrust, specific fuel consumption?

Mr. SMITH. Yes, sir.

Mr. BALWAN. Once you deliver that and it has the Navy stamp of approval, it is Government-furnished equipment which you turn over to the Navy?

Mr. SMITH. Well, I don't know that it is quite as simple as that.

In the first place, we start thinking, as do all engine manufacturers start thinking, of these designs before we have a contract. We have some idea of what we can do and what we think our technological advance has been, the advance in the art.

And usually development contracts are a basis of mutual agreement and discussion with the Navy as to what we think we can do. Also it is quite common that a new family of engines is expected to have a growth potential, as we refer to it. They will start at a certain thrust, and through their lifetime be improved up to some other point.

Mr. BALWAN. Mr. Smith, the –6 and –8 were in the same family as the –22 and –22A.

Mr. SMITH. They were the earlier engines.

Mr. BALWAN. But in the same family, –6, –8, –22 and –22A.

Mr. SMITH. Yes, except the –6 did not have the same thrust because it didn't have an afterburner.

Mr. BALWAN. That would indicate that it would have less power.

Mr. SMITH. The development of the engine comes first and then the afterburner, so the –6 was first, then came the –8, the –22, and the –22A.

Mr. BALWAN. On page 5 you mention that:

The first flight of the J40–22 engine occurred on December 24, 1953, in an F3H, weighing approximately 29,000 pounds.

I am wondering if you can clarify for the committee why in the statement of first flights you added immediately thereafter the weight of the aircraft.

Mr. SMITH. I did it because I was not sure that the fact that has already come out this morning would be brought out, and I wanted to bring it out.

The original aircraft was of a lighter design and for a different mission, and as has already come out from Mr. McDonnell's testimony, that aircraft was satisfactory both as respects the aircraft and the engine.

But the requirements of the service, and I believe, because we were either at war or approaching war, required that we have something other than had been contemplated when this design came out. There was a need for a change, and that required a heavier aircraft, as was pointed out, partially because of equipment that it had to carry.

Mr. BALWAN. But when you were asked to design the –10, did you know, did they tell you the kind of plane it was going into and the weight of that plane?

Mr. SMITH. It is my impression that when the –10 was originally contemplated, it was a growth development of the –8, and not necessarily known that it was headed for any change in the airplane. But I think that the original concept might have been better had it had more thrust.

Mr. BALWAN. It was a radically new engine. It wasn't just multiplying the size of a part by 1½ to get 1½ times more thrust.

Mr. SMITH. It was very much more complex than anything we had ever done before that.

And another reason that I have added the weights is because I wanted to emphasize the point that I am sure that the Navy and the McDonnell people will concur with me that when the change to a heavier aircraft was decided upon as a necessity, it was recognized that there was no engine available at that time of the proper thrust to handle that size and weight. But it was necessary to gain the flight time and the experience that would be necessary later on to have the production version of the heavier equipment.

And it was decided that the –22 version of the J–40, which was of the same thrust—it differed mainly from the –8 in a generator for a. c. current—was to be used to get some of the initial interim aircraft into the air to get some of this flight time which Mr. McDonnell explained so ably this morning that we all have to have.

And I don't believe it was ever contemplated that any of the aircraft with the –22 engine would go to combat. It is my understanding, at least, that that was not contemplated. It was only to be a development interim unit.

Mr. BALWAN. I think it might be helpful to the committee to tell us how the Navy plans with you and with McDonnell in the use of these engines. A more direct question is this.

When you were asked to build the –22, were you told that it was going into the F3H–1N or were you just asked to build a modified version of the –8 without reference to the plane——

Mr. SMITH. First, let me explain why we changed from a –8 to a –22. With some of the new equipment that was going in, it was necessary to have a 400-cycle a. c. current to operate some of the new equipment. We changed the engine from a –8 to a –22 primarily to put on that type of generating equipment. We knew that it was going into the heavier aircraft only as an interim measure to gain time and get initial development work under way while we were waiting for the more powerful version of the J–40, or the J–71, whichever one came through first, because we were at war at that time.

Mr. BALWAN. Are you kept informed or is Westinghouse kept informed as to the reasons, the causes for the various crashes which occurred as they occurred?

Mr. SMITH. Our people, our engineers, are in on every crash. We are there just as fast as we can get there.

We, as a rule, have people at any airframe plant where our engines are being used and they get to the scene as quickly as possible. They have been in on all discussions so long as the discussion has to do with the powerplant, and I think quite correctly when the discussion pertains to the airframe only we are not present.

Mr. BALWAN. Are you familiar with the analysis of the causes of the various crashes that have been given in the testimony before the subcommittee in the past 2 days?

Mr. SMITH. We have never had, to my knowledge, a complete and final opinion on each of the crashes.

We have the decisions that were reached on the part in which we were a party, but we have never been advised as to the final conclusions as to what happened. I said in my testimony I wished to start no arguments, because we feel that there are certain of these crashes in which it may never be known exactly what happened. I don't think it is possible for anybody to determine positively what happened.

Mr. HOLIFIELD. Certainly as the producer of the engine, the Navy should furnish you all the information they have on that to guide you in future engineering.

Mr. SMITH. Mr. Chairman, I don't feel that they have held back anything at all. I didn't intend to imply that.

Mr. HOLIFIELD. Who was responsible for the testing, for the evaluation of the crashes?

Mr. SMITH. There are three people that are responsible for being in on the evaluation: the enginemaker, the airframemaker, and the Navy.

Mr. HOLIFIELD. Did you sit in on those?

Mr. SMITH. We sat in insofar as the discussions of the engine portion were concerned. The Navy, of course, is in on both, as they should be, and the airframemaker is in on both, because that is the end product.

Mr. HOLIFIELD. Isn't it a matter of interest to you to know whether the evaluation places the blame on your engine or on the frame or on both? If you do not have full information from all sides on it, how can you evaluate your own position?

Mr. SMITH. So far as I know—I am trying to remember something. As I remember it, there were only three accident flights in which there is a doubt as to whether it was the engine or some other factor, and I don't know what the official opinion is. I don't know whether it has ever been determined, or whether it is still classified as "unknown." I think that that is quite likely in some cases.

Mr. HOLIFIELD. It may be classified to the general public, but it shouldn't; it certainly shouldn't be classified to the airframe manufacturer and the engine manufacturer if there is going to be any teamwork where there is a joint production and the Navy is a coordinating factor. It would seem to me that the Navy should supply the result of each evaluation to all the people who were involved in it.

Mr. SMITH. Mr. Chairman, if we may, I suggest that we pursue this in executive session, but I should like to make one more point, and that is that I don't think any of us at Westinghouse were aware that there was a difference of opinion in these things until the recent publicity had come about. I think we were under the impression that

we did know, and I think that can be brought out in our later discussion.

Mr. HOLIFIELD. All right; we will take this matter up in executive session.

Proceed, Mr. Balwan.

Mr. BALWAN. On page 4 you say, "the Douglas XF4D Skyray set two new speed records in October 1953."

With which engine?

Mr. SMITH. It was the -8, sir.

Mr. BALWAN. And what engine is being used in the F4D today?

Mr. SMITH. The J57, I believe.

Mr. BALWAN. Who makes that?

Mr. SMITH. Pratt & Whitney; again we were an interim engine in this original prototype.

Mr. ROBACK. What is the significance of that statement, Mr. Smith? You say the Douglas XF4D Skyray set a speed record with a plane that is now using another engine?

Mr. SMITH. Well, it only shows, I was trying to point out, that statements that the engine wouldn't fly were not justified because when it established a speed record it did have a J40 engine.

Mr. ROBACK. You set a new rate of climb early in 1955, and the plane was grounded a month or so later?

Mr. SMITH. Excuse me, sir, I understood you to say in the first place that you were referring to the Skyray. The speed record was established by the Skyray. The climb record, by the F3H Demon.

Mr. ROBACK. I am making a second observation.

Mr. SMITH. It also demonstrates, I think, or it is significant, that the engine was able to fly if it could establish a rate of climb record, which it did early in 1955.

Mr. ROBACK. Have you ever considered the engines which went into the F3H airplane unreliable?

Mr. SMITH. No, sir.

Mr. ROBACK. Do you think there are any grounds for the judgment that they are unreliable?

Mr. SMITH. I would prefer to discuss that in executive session.

Mr. ROBACK. Have you ever made any representations to the Navy or to McDonnell that they were unwarranted in saying they were unreliable?

Mr. SMITH. That statement has never been made until this past few weeks.

Mr. ROBACK. Do you bedieve that those statements by the Navy or anybody else that they were unreliable is an unwarranted judgment upon your company's efforts?

Mr. SMITH. As I said before, I prefer to discuss this in executive session. However, I should like to make one statement: That to the best of my knowledge and belief, there has never been an engine shipped out of the Westinghouse plant, since I have been there, that was not worthy of flight. It would not have been shipped had that been the case.

Mr. ROBACK. Mr. Smith, do you want to discuss this in executive session, because it might be embarrassing or because it is classified?

Mr. SMITH. Because it is classified.

Mr. ROBACK. You mean it would be a matter of classification if you made representations to the Navy that they were treating your company unfairly?

Mr. SMITH. No, sir; that isn't the thing I intend to say.

Mr. ROBACK. I asked you whether you ever made any representations to the Navy that their judgment that the aircraft flying your engine was unreliable was an unfounded accusation, or cast an unfair light upon your company's efforts.

Mr. SMITH. So far as I know, sir, the Navy has never said that the engine was unreliable. The statement that has been made, as I understand it, is that the combination of the airframe and engine was not reliable because the weight of the aircraft was too great for the thrust of the engine.

That is the statement that, as I understand it, has been made by the Navy. A lot of statements have been attributed to people but, as far as I know, the Navy has never said the engine was unreliable.

Mr. ROBACK. You have never heard that?

Mr. SMITH. Not from the Navy.

Mr. ROBACK. If the statement were made, would you attribute the statement of unreliability to the fact that the engine was underpowered for the airplane?

Mr. SMITH. I would; yes, sir.

Mr. BALWAN. Following that up, I would like to have him state where the Navy has alleged that this plane is either unsafe or unreliable.

Mr. HOLIFIELD. Do you have that reference? We will have the staff look it up and it will be inserted at this point.

(The following was subsequently inserted for the record:)

EXTRACT FROM UNCLASSIFIED VERSION OF PRESENTATION GIVEN TO STAFF INVESTIGATORS OF THE MILITARY OPERATIONS SUBCOMMITTEE OF THE HOUSE OF REPRESENTATIVES GOVERNMENT OPERATIONS COMMITTEE IN UNDER SECRETARY OF THE NAVY OFFICE (MR. GATES PRESENT) BY CAPT. H. T. DIETRICH, USN (P. 7)

As stated previously, the engine the Navy wanted and had under development with WECO was the J40–10. Disappointing slow progress on this engine by WECO caused the Navy to order a production quantity of engines of lesser performance, the J40–22, in order to get important aircraft in the air to accumulate flight experience on the airframe. The Navy received a limited quantity of these lesser performance engines, which experience has shown to be unsatisfactory due to lack of reliability, as a result of which the F3H–1/J40 combination has been grounded since July 7, 1955, as being definitely unsuited, if not unsafe for flight.

Mr. BALWAN. On page 3 you said:

The J40–22 was intended to be only an interim engine to power the early F3H–1 aircraft for flight test and development work until the more powerful J40–24 engine became available.

How many –22's did you have on order?

Mr. SMITH. After the termination at the time that that decision was made, approximately 150.

Mr. BALWAN. What is the greatest number of –22 engines that you had on order at one time?

Mr. SMITH. May I consult?

Mr. HOLIFIELD. Surely.

Mr. SMITH. The highest number we ever had is 427, and that was during the Korean war.

Mr. BALWAN. Will you repeat that, please?

Mr. SMITH. Four hundred twenty-seven, and that was during the Korean war, and what the intentions were at that time, I don't know.

Mr. BALWAN. You have a statement that the –22 was intended as an interim engine for flight test and development. Now you say you don't know what some of the other reasons for ordering this many planes are.

Mr. SMITH. I think it is quite clear, sir, that some of the suppliers are not in on the planning in time of war. What was planned, I am not sure.

It is also possible it was planned as an interim or development engine in some other aircraft. I am not in position to answer that.

Mr. HOFFMAN. Might I ask, Mr. Chairman, is there a claim that the Navy ordered too many of these engines at that time?

Mr. HOLIFIELD. I don't think the claim has been made, but it would be a matter of judgment as to the need for it, once we establish the numbers that were originally ordered and the final amount that was finally ordered after the cutback occurred.

Mr. BALWAN. The only reason I asked that question was to reconcile the statement that the –22 was an interim engine for flight test and development, and they ordered as many as 500. I suppose we should ask the Navy whether as large an order as that is the usual amount for flight test development work. I don't know.

Mr. HOFFMAN. I assume this was in wartime, and that the Navy ordered them in good faith. I don't know.

Mr. SMITH. Excuse me, sir. My statement so far as interim is concerned was with respect to the Demon only. I don't know what the plans otherwise were.

Mr. BALWAN. Was the –22 used in any other plane that you know of?

Mr. SMITH. As it turned out, no.

Mr. BALWAN. Was any frame designed around the –22 that you know of, even though it was not used?

Mr. SMITH. Not as the –22, no, sir, not that I know of.

Mr. BALWAN. As the –8 or the –6?

Mr. SMITH. There were other airplanes originally designed around the –6 and –8.

Mr. BALWAN. Which ones were they?

Mr. SMITH. The Grumman F10F was one, and I believe, the Skyray, as it was originally laid down, was designed around the –8.

Mr. BALWAN. What happened to the F10F?

Mr. SMITH. It dropped out of the picture very early, I can't answer what happened. I don't know.

Mr. BALWAN. You have no idea whether there were airframe difficulties?

Mr. SMITH. No, sir; I have not.

Mr. BALWAN. Or the unavailability of J–40 engines?

Mr. SMITH. There was no lack of availability, I feel sure, but I don't know why.

Mr. BALWAN. In connection with the question by the staff concerning statements by the Navy that these engines may have been considered unreliable, we have had testimony already in the record taken

from the unclassified version of a presentation given to staff investigators by Captain Dietrich, in which it is said:

> The Navy received a limited quantity of the lesser performance engines, which experience has shown to be unsatisfactory due to lack of reliability, as a result of which, the F3H–1/J–40 combination has been grounded since July 7, 1955, as being definitely unsuited if not unsafe for flight.

In the same document it says:

> Of these 11 crashes, 6 were the result of engine malfunction, 3 were the result of airframe difficulty, and 2 could not be precisely ascribed to engine or airframe trouble alone.

Mr. Chairman, I don't think that we can pass judgment on what are the causes of these. Each party would disclaim responsibility. It was observed earlier that we have three different versions on the problem.

Mr. HOLIFIELD. I think it is important also to point out that you have testified that you did not have this information; is that right? Were you aware of these statements of the Navy?

Mr. SMITH. It all depends upon which of the crashes, forced landings, aborted flights that we are talking about.

Mr. HOLIFIELD. We are talking about 11.

Mr. SMITH. Yes, but I have a list of more than that, and some of them that are on the Navy list are not on my list, and some that are on mine apparently are not on theirs.

Mr. HOLIFIELD. You mean to say that the subcommittee cannot rely upon the fact that we have been told that there were 11 crashes?

Mr. SMITH. Some of them are quite minor, sir. In some of the ones that I have on my list, no one was injured; the airplane was not lost. There was no serious damage done, but they do rate as being a forced landing.

Mr. HOLIFIELD. Do you ordinarily classify a forced landing as a crash, when the plane is not damaged?

Mr. SMITH. It is ordinarily classed as a dead-stick landing.

Mr. BALWAN. Mr. Chairman, may I suggest that we have the dates of all the crashes that occurred of these 11, and I am wondering if, with the permission of the Department of the Navy, the classified portions of information dealing with those crashes, if they could advise us whether we could discuss crashes Nos. 1, 2, 3, 4, down through 11, if that would help the situation, because there is intense interest on the part of the public, and if the subcommittee can do anything to clarify the crashes, it will be very helpful.

Mr. HOLIFIELD. Admiral Russell, I think you are the proper person to answer that question.

Admiral RUSSELL. Yes, sir. There have been two accidents with the experimental F3H–1. That is the XF3H–1. The first of these was on August 2, 1952, at Pratt, Kans. The pilot was Mr. Houghton of McDonnell Aircraft Co. The engine turbine failed. He landed in a dead-stick landing short of the runway.

He did B damage to the aircraft. The severity of damage is labeled A, B, C, D, and E. E is no damage although it involved a forced landing or some incident. A is total loss of the airplane. B is a major overhaul, the airframe had to be overhauled.

Mr. BALWAN. The plane was, we can assume, probably repaired and used again?

Admiral RUSSELL. It was indeed used again, because it crashed to total destruction on the 9th of March 1954 with the pilot, Mr. North, of the McDonnell Aircraft Co. He received C injuries. A is fatal, death, and C is midway on the scale down to E which is no injury to the pilot at all.

The airplane was a total loss, and, of course, obviously when there is a crash from the air, the reason for the crash is in doubt because the evidence is destroyed. This one I attribute as being seriously—the engine was at least in doubt in this case. Now there are the two crashes which we have had with the experimental craft.

Mr. BALWAN. What was the cause of the first one?

Admiral RUSSELL. Dead engine. It threw a turbine blade.

Mr. BALWAN. Could you describe very briefly what they mean by throwing a blade?

Admiral RUSSELL. You have heard testimony today, sir, that there are many blades like the blades in a windmill in a turbine. If one of these blades with centrifugal force leaves its proper position, this is a failure of the blade.

Mr. BALWAN. How serious is it?

Admiral RUSSELL. Well, the blade usually comes through the engine casing and it can do most any sort of damage you please. It is one reason for having jet engines in pods, because if they break up in flight, it doesn't damage the basic structure of the airframe. That is why they hang the engine down underneath in pods, one of the reasons for it.

If we are clear on the experimental F3H crashes, I will proceed to the crashes of the F3H–1.

Mr. SMITH. This agrees with my record, Admiral Russell.

Admiral RUSSELL. I understand there is a disagreement with the Westinghouse record.

Mr. SMITH. I say it does agree. The first was a turbine-blade failure and we classified the next one as in doubt as to what happened.

Mr. BALWAN. May I correct that? You classed that as in doubt as to what happened. The admiral said——

Mr. SMITH. The second crash.

Admiral RUSSELL. The second one where the aircraft was destroyed you cannot say obviously definitely the engine was at fault.

Mr. BALWAN. Was that a case where you had a chase plane and a test plane——

Admiral RUSSELL. Undoubtedly they had a chase plane. I am not familiar with the details of it though.

Mr. BALWAN. I am wondering if they have any more information than that, Mr. Chairman.

Admiral RUSSELL. Lieutenant Colonel Bolt informs me that we attribute the loss of the FX–3H due to a broken fuel line at the engine. It isn't to the engine itself. A broken fuel line is a fire in the engine section.

Mr. BALWAN. This was the part between the frame and the engine?

Admiral RUSSELL. Well, the fuel comes from a tank into the fuel pumps and what-not into the engine, and we think that the fire in this case was due to a failure in the line.

Mr. BALWAN. Could that be an airframe failure? Does the fuel line come under frame?

Admiral RUSSELL. It depends on what section of the fuel line, really.

Mr. BALWAN. Well, the one you are talking about.

Admiral RUSSELL. I don't know. I hope you understand my position here.

Mr. BALWAN. I do.

Admiral RUSSELL. I don't know if there is any evidence in the crash that we had a whole turbine.

Colonel BOLT. Yes, sir; the turbine was intact.

Admiral RUSSELL. So the turbine in the engine was not in fault in this case, we will say. The fuel system was.

Now, I have in the case of the F3H–1, seven accidents, and I will read these off by dates if I may, sir.

On the 16th of March 1954, pilot Mr. C. Braun of McDonnell, engine turbine failure, oil line failed, dead-stick landing. Damage to the airframe D category. Injuries to pilot: none.

Mr. BALWAN. Would this be classified as a crash?

Admiral RUSSELL. That is listed as an accident. They are all accidents.

Mr. BALWAN. Do we have such things as accidents and incidents?

Admiral RUSSELL. Well, the company has incidents; we have accidents in the Navy.

Mr. Braun is in the room. Do you care to say anything about this particular crash? Here is the pilot, sir.

Mr. BRAUN. Do you gentlemen have any questions?

Mr. BALWAN. Will you identify yourself for the record, please?

Mr. BRAUN. I am C. Braun, McDonnell Aircraft Co.

Mr. BALWAN. What do you do with McDonnell?

Mr. BRAUN. I was formerly experimental test pilot at McDonnell.

Mr. BALWAN. And apparently you were in this plane when the incident or the accident occurred.

Mr. HOLIFIELD. Congratulations on it being so incidental that you can be with us today.

Mr. BALWAN. Would you agree with the qualification as an engine failure having caused this incident?

Mr. BRAUN. Yes, sir.

Mr. SMITH. There isn't any question about it.

Admiral RUSSELL. Two days ago you heard the personal account of Lt. Comdr. Nick Smith right here in this room, sir. We lost the aircraft obviously. The tail came off in the air, fire in the engine section.

Mr. SMITH. Admiral, just so we may be sure here, that is another one that I classified as not knowing for sure.

Admiral RUSSELL. Nonengine.

Mr. SMITH. As not knowing. It might have been, but we just didn't know.

Mr. BALWAN. What is the Navy's position?

Admiral RUSSELL. I believe in this case our theory is that the turbine as against the compressor let loose a blade which went out and cut a fuel line. We are not sure of this, of course. I give it to you here and now just to show you what the evidence is to us.

Mr. BALWAN. Mr. Chairman, may I add another note to this? We have the version here of the Navy and of the enginemaker, and I wonder if the frame manufacturer would care to comment as to whether this might be a frame failure.

Mr. McDONNELL. Yes, sir. We have detailed evidence on all of this. I would like to ask the counsel of the Navy as to whether this detailed evidence with pictures of the wreckage, details of where turbine blades went through this and that, can be submitted, short of executive session.

Admiral RUSSELL. Mr. Chairman, we are treading on marginal ground here. I have been asked specifically about the engines. This particular engine is defunt now. It is out of service.

When we get to certain other failures I would like to ask to testify in closed session, sir.

Mr. HOLIFIELD. I think that unless we can have a comparison of all of them it would be meaningless, so I think we can desist on this line of questioning, and then have the three people that are involved in executive session take these cases one by one.

Admiral RUSSELL. Yes, sir. Would you like the correct number in accordance with my records, sir?

Mr. HOLIFIELD. Yes, sir.

Admiral RUSSELL. As I have said, there were 2 with the experimental XF3H–1, 2 accidents, and with the F3H–1, the production model, I have here 7, and this is all, sir, for that model. Now we have some others.

Mr. HOLIFIELD. These were the J40 engines and what dash numbers?

Admiral RUSSELL. F3H–1 was the J40–22. Now, whether it is 22 or 22A I think is more or less incidental. Does that answer your requirements, sir?

Mr. HOLIFIELD. I think we will have to desist on this line of questioning.

Admiral RUSSELL. Mr. Chairman, as I have explained many, many times, we have no secrets from this committee.

Mr. HOLIFIELD. I realize that.

Admiral RUSSELL. We have opened everything to your investigators. We have nothing to hide, sir.

Mr. HOLIFIELD. I realize that, sir. You have been fully cooperative, and we have no complaints. We will proceed to another matter.

Mr. ROBACK. Mr. Wells, who offers the flight performance guaranty of an engine?

Mr. SMITH. The guaranties for an engine are included in what we call a model specification for the engine.

Mr. ROBACK. Will you repeat that, please?

Mr. SMITH. I say the guaranties for thrust, specific fuel consumption, weight, and so forth, are given in what we call a model specification, a specification for the particular model engine involved.

Mr. ROBACK. In other words, the enginemaker will state what the flight performance of the engine will be; is that correct?

Mr. SMITH. No, sir. He would guaranty thrust and he would guaranty specific fuel consumption, as measured on a test stand.

Mr. ROBACK. What is your understanding of this statement made by Mr. McDonnell?

The promised date of availability was repeatedly extended into the future, and the guaranteed flight performance of the J40 engine was seriously downgraded.

Mr. SMITH. That is exactly as I mentioned in my text, that we were delayed, repeatedly delayed in the development of the more powerful engine, and the difference between the –10 and the –24, which it was

agreed we would build at the time of the Korean conflict, was downgraded from what had originally been contemplated when we started out with the -10.

Mr. ROBACK. You are talking now of specifications for the engine, not about flight performance.

Mr. SMITH. I realize that. An enginemaker, sir, cannot guarantee flight performance. He has no way to test it except in an airplane.

Mr. ROBACK. What is your understanding of the phrase or of the statement, "The guaranteed flight performance of the J-40 engine was seriously downgraded"? What is your understanding of that statement?

Mr. SMITH. It is my understanding from that, that the guaranty that we were able to make or the representations that we were able to make on our guaranties for the more powerful engine had to be reduced to the point where Mr. McDonnell's computations of flight performance were not satisfactory. Perhaps Mr. McDonnell could clarify that.

Mr. ROBACK. Mr. Smith—excuse me, I called you Mr. Wells before—is it the position of Westinghouse with respect to this matter that they produced according to specifications the engines that the Navy asked of them?

Mr. SMITH. No, sir; in the first place we didn't deliver any engines of the class 10 or class 24 configuration.

Mr. ROBACK. So that failure to perform in the higher thrust class is something that Westinghouse——

Mr. SMITH. We didn't even develop the engine. We were not able to develop an engine as we had contemplated in the time that we had agreed to.

Our development took longer than we had anticipated and, as a result of the fact that another manufacturer had been successful in developing an engine of higher thrust, ours was canceled and his was used.

But all of the engines, I want to make this very clear, all of the engines that we delivered did meet their thrust specifications before they were shipped. There were no engines that we delivered to McDonnell that were downgraded in any way insofar as thrust was concerned.

Mr. ROBACK. Are you satisfied that the testing of the engine before it left the plant and the acceptance by the Navy were adequate?

Mr. SMITH. Yes, sir.

Mr. ROBACK. The operations?

Mr. SMITH. Yes, sir; I am.

Mr. ROBACK. Have you ever been advised by the Navy that these testing operations were inadequate?

Mr. SMITH. No, sir.

Mr. ROBACK. Do you know of any kind of new procedure which will improve the testing of your engines on the ground?

Mr. SMITH. No, sir.

Mr. HOLIFIELD. So that if I am to understand your testimony, all engines delivered, regardless of model, to the Navy met specifications, and if they did not meet performance other factors were involved such as a heavier airframe, a heavier burden placed on them than was originally contemplated, or some other factor?

Mr. SMITH. Either that or a trouble developed that could not be detected in test. That is entirely possible. These turbine-blade failures obviously were our responsibility, but they did not fail in test, they were not detected, let's say.

Mr. HOLIFIELD. Is there a greater strain on an engine in flight at times than there is on your test blocks?

Mr. SMITH. No, sir; I think not. We attempt to, if anything, give them a more severe test on the block than they get in the airplane.

Mr. HOLIFIELD. Mr. Balwan?

Mr. BALWAN. In connection with the chairman's question, are there any factors which bear upon engine performance as a result of altitude which may cause it to act differently than on the test stand?

Mr. SMITH. We know that they act differently at altitude. We try to simulate altitude in the test chamber but that is done only for testing the characteristics of the engine before it can be gotten in the air for testing. On acceptance testing or anything of that kind, it is only at simulated sea level.

Mr. ROBACK. Mr. Smith, with regard to the timing of delivery of the engine which you produced, what effect, as you understand, would the termination of the contract have had on the use of the airframe? Suppose the contract had been terminated at the time the decision was made to shift to a new engine, how many engines would have been delivered?

Mr. SMITH. I am not sure that I understand that question, sir.

Mr. ROBACK. Are you familiar with the time when the decision was made by the Navy to substitute a new engine for the J40?

Mr. SMITH. At the time that the higher thrust J40 was terminated; was that the time you mean?

Mr. ROBACK. Well, the decision by the Navy was made a year before your contract was terminated, if I recall correctly.

Mr. SMITH. Except there was a termination on the higher thrust engine in the fall of 1953.

Mr. ROBACK. Now, with respect to the lower thrust engine which was manufactured and delivered in some quantities, what was the situation in November of 1952?

Mr. SMITH. In November of 1952 we had delivered nothing but –6 and –8 engines at that time, sir.

Mr. ROBACK. How many –6's and –8's had you delivered? I mean were there less than 100?

Mr. SMITH. Yes, sir.

Mr. ROBACK. So that if your contract had been canceled at the time the decision was made to substitute the new engines, there would not have been required any airframes to cover those engines; is that your understanding?

Mr. SMITH. You asked for my understanding of what would have happened; is that correct?

Mr. ROBACK. Yes.

Mr. SMITH. There would have been no flight test accomplished until the higher thrust engine was available.

Mr. ROBACK. What, in your opinion, was a reasonable number of aircraft to do test flying?

Mr. SMITH. I don't believe I am qualified to answer that question, sir.

Mr. ROBACK. You made a judgment in your statement that these engines were ordered for purposes of test flight.

Mr. SMITH. Yes, sir.

Mr. ROBACK. How do you know that they were ordered for test flying? You have stated that you don't know how many engines ought to be used in test flying.

Mr. SMITH. Sir, it is not up to me to determine that. I think the airframe company determines how many aircraft they need for developing their airframe and for their test flying.

Mr. ROBACK. The company didn't order the engines.

Mr. SMITH. The Navy orders the engines after consultation with the airframemaker as to an agreement as to how many test vehicles will be needed and how many spares will be needed.

Mr. ROBACK. Have you verified the fact that if the contract had been canceled at the time the decision was made to substitute new engines, no airplanes would have been required for the engine which you produced? Have you stated that as a fact?

Mr. SMITH. No, sir; I have not. I haven't attempted to verify it.

Mr. HOFFMAN. Mr. Chairman, may I ask counsel there if they canceled them there wouldn't have been any attempt to improve the engine? Would you have had them canceled right there and then on what they discovered at that time? Is that the contention? I am not critical. I am just trying to find out what the issue is.

Mr. ROBACK. They had in process, Mr. Hoffman, the development of a new higher powered engine which this company could not produce, so there came a time when they made the decision to substitute that new engine.

Conceivably, they could have canceled a contract for engines that ran into a considerable quantity at a considerable cost. My question was, Would it have followed in his understanding that no airplanes would have been required to cover those engines?

Mr. HOFFMAN. As I understood the testimony of the Navy fellows they were continuing or asking the company to continue to try to improve those engines which hadn't met requirements. Maybe I am wrong about that.

Mr. ROBACK. Not with respect to this class of engine, Mr. Hoffman. The contract for the higher thrust engine was canceled finally a year later. That was a separate thing which was not going into the airplane because they never built it.

Mr. HOFFMAN. I understand that but I thought you were talking about the engine which has been characterized as being no good, but wasn't the Navy at the same time trying to get an engine from Westinghouse that was reliable, I mean that same model, make improvements on that?

Mr. ROBACK. The purpose of my question, Mr. Hoffman, was to try to see what extra costs were incurred not only with respect to the engine but with respect to the frame by not canceling the contract when the decision was made to throw that engine away as far as flying is concerned.

Mr. HOLIFIELD. I think you understand what counsel is driving at.

Mr. SMITH. I do, Mr. Chairman.

Mr. HOLIFIELD. The counsel, I think, is driving at this point, as I understand it: that if at the time the J–40 engines—it was decided that they would be replaced in the airframe by the J–71—if at that

time these engines had been terminated; in other words, if production stopped on those engines, it would not have been necessary to buy additional airframes to install the additional engines in, and he was wondering why there was not a complete cutoff of the J–40 engine at that time, in place of the continued production of it, apparently to fill the airframes which the airframe manufacturer was producing.

Mr. SMITH. Sir, I don't think I am qualified to answer so far as the airframes are concerned.

Mr. HOLIFIELD. Just say so.

Mr. SMITH. It is my understanding that they did not do that so they could have flight test time with the aircraft, but that is conjecture on my part.

Mr. ROBACK. We asked you whether you could establish how many of such engines had been delivered in November 1952 when that decision was made by the Navy.

Mr. SMITH. That we can determine; yes.

Mr. ROBACK. You don't know how many engines were delivered?

Mr. SMITH. Offhand, I don't. We can look it up.

Mr. ROBACK. While he is looking it up, I will ask you another question. You stated that your understanding was that these engines had been ordered for purposes of flight testing. What would be your judgment as an engine manufacturer as to the value of these engines for insurance in relationship to the new engine that was coming up? What kind of insurance could it have provided from the standpoint of serviceability?

Mr. SMITH. If I understand the question correctly, it could have saved the amount of time between the time it became available for flight test and the time that the new engine was available for flight test.

Mr. ROBACK. Just for flight testing, but it could not have been used in the sense that if the other engine didn't pan out, you could use this engine. There was no understanding of that kind as far as you know?

Mr. SMITH. That is not my understanding on the –22 but since it was in time of war I have no way of knowing what the overall plans in that respect may have been.

Mr. ROBACK. If the question had been submitted to you whether it was advisable to use the –22 in a combat plane, what would you have recommended?

Mr. SMITH. I would not have recommended it with that weight aircraft for combat.

Mr. ROBACK. You make a statement in your prepared report that the WE–10 did not come on in time. Do you have any surmise when the WE–10 could have been delivered if you were allowed to continue with the development and the production contracts?

Mr. SMITH. That is a very difficult thing to answer. I wouldn't care to even make a guess on it.

Mr. ROBACK. You don't know in fact whether you ever would have.

Mr. SMITH. "Ever" is an awful long time.

Mr. ROBACK. "In time" is in the statement and I assume there is some reasonable stretch between here and the unspecified future.

Mr. HOLIFIELD. I would like to ask you one question on the third paragraph on page 5 of your statement where you say:

The first flight of the J40–22 engine occurred on December 24, 1953, in an F3H, weighing approximately 29,000 pounds.

Was it contemplated when you first made the J40–22 engine that it would be in that weight airframe or was it contemplated that it should be in a lighter frame?

Mr. SMITH. It is my understanding that by the time we reached the –22 version of the engine, we realized that it would be used in a heavier aircraft as an interim engine for flight purposes.

Mr. HOLIFIELD. And was it also your understanding that the J40–22 engine did develop enough thrust to properly take care of that weight airframe?

Mr. SMITH. "Properly" is an indefinite word. A number of flights were accomplished and I believe that both the Navy and McDonnell feel that considerable valuable information was obtained from those flights.

Mr. HOLIFIELD. But, at any rate, you did deliver that engine according to the specifications which were set forth, and it did develop the thrust which was expected of it.

Mr. SMITH. That's correct.

Mr. HOLIFIELD. And if a heavier frame was put on it than that thrust could take care of, then your position would, of course, be clear in that it was overweighted or overburdened.

Mr. SMITH. I wanted to make it clear that most of these incidents, accidents, or crashes, or whatever we call them, have occurred after we got to the heavier aircraft. There were a considerable number, a very considerable number of flight hours, with the lighter aircraft when the ratio of weight to thrust was in a better area.

Mr. HOLIFIELD. Without going into the specific figures, was the weight of the frame that held the J40–6 and –8 less per pound thrust than the weight of the J40–22 to the 29,000-pound frame?

Mr. SMITH. The thrust was the same in both cases, sir. Weight only went up. The –8, the –22 were the same thrust.

Mr. HOLIFIELD. Then it is obvious either that it was overpowered in the lighter frame or underpowered motor in the heavier frame, isn't it?

Mr. SMITH. Mr. Chairman, I believe that all of us, I think that everyone involved realizes that the aircraft was underpowered for anything but the initial development work that would make it possible to bring on the later one in a proper form.

Mr. HOLIFIELD. This is a thing the committee can't understand. Why, if the Navy and the airframe people knew in advance that it was an underpowered engine for that weight frame, why did they put it in?

Mr. SMITH. Mr. Chairman, we had to do things like that in this business, sir, or we couldn't have the development that has kept us up where we are. Those things have to be done. It is a common practice in this industry to use prototype equipment for development work.

Mr. HOLIFIELD. I would assume that you would use prototype equipment that you thought would have some relation of the weight of the frame to the engine if you expected satisfactory tests.

Mr. SMITH. There are many things that can be accomplished, Mr. Chairman, and I am not an airframe man. I think they can best be answered by other people, but I know enough to say this: There are many things that can be accomplished in flight-test work and evaluation of the airframe even though you do not have the speed and rate of climb and range performance that you expect to have with the

ultimate product. It is virtually impossible to do this development work without flying.

Mr. BALWAN. Mr. Smith, was Westinghouse ever informed by BAR, St. Louis, and by the McDonnell Aircraft Corp., or by BAR, Kansas City, or by the Bureau of Aeronautics, concerning negligence at McDonnell in the handling of Westinghouse engines?

Mr. SMITH. No, sir; not so far as I know.

Mr. BALWAN. You heard about them for the first time at this subcommittee hearing?

Mr. SMITH. Yes, sir; and I might add also that, so far as any of our records indicate, none of the foreign object damage had any relation to any of the difficulties with our equipment in flight.

Mr. ROBACK. Mr. Smith, what was the trouble with the J–46?

Mr. SMITH. I am not sure what you mean by that, sir.

Mr. ROBACK. Well, what were the reasons? Were there cutbacks in the J–46 engine?

Mr. SMITH. Yes, sir.

Mr. ROBACK. What were the reasons as you understand them?

Mr. SMITH. Primarily, it is my understanding that the cutback was primarily because we were slow in getting it into volume production.

Mr. ROBACK. It was a question of delivery and not of engine performance?

Mr. SMITH. Yes, sir; the engine is now performing satisfactorily with the fleet, I believe.

Mr. ROBACK. How many airplanes was that engine supposed to go into?

Mr. SMITH. Is this classified? I don't know. Perhaps we should ask Admiral Russell whether quantities of this aircraft are classified. I don't know.

Mr. ROBACK. We will withhold the question. Is this a classified question? What was the aggregate number and dollar volume of the J–46 contracts, both development and production?

Mr. SMITH. I prefer to refer this to Admiral Russell because it gets into delivery schedules and I am not sure whether that is classified or not.

Mr. ROBACK. Mr. Smith, are you familiar with the statement which the president of your company made to the reporters with respect to troubles encountered with the J40 and J–46?

Mr. SMITH. No, sir; except by hearsay I was not there and I have not discussed it.

Mr. ROBACK. I will quote a statement and ask you whether this statement in your understanding is true or not. This is a purported quote from the Wall Street Journal of September 14, 1955, ascribed to Mr. Price, who is, I understand, president and chairman of the board of Westinghouse Electric Corp.:

> We had an ungodly amount of trouble with those engines—

referring to the J40's and J–46's—

> and they just didn't meet performance standards.

Mr. SMITH. It is my understanding he was referring entirely to our development engine that was canceled.

Mr. ROBACK. You mean the production was not in the class of failing to meet performance standards?

Mr. SMITH. That is my understanding of what he meant in his statement, that he was referring to the development engine only.

Mr. ROBACK. Have you ever had any representations by the Navy as to unsatisfactory performance by the J–46?

Mr. SMITH. We have had difficulties with it; yes, sir.

Mr. ROBACK. Have you ever had representations by the Navy with respect to failure or lag in the development of the J–40?

Mr. SMITH. Will you please state that again?

Mr. ROBACK. Have you ever had communications from the Navy registering their concern over the limited or lagging progress in the development of the J–40?

Mr. SMITH. That was in the days when we were working on the higher-thrust engine, a great many; yes.

Mr. ROBACK. Were any representations made to your company by Admiral Harrison with respect to the stage of development of the engine at any given time?

Mr. SMITH. As far as I am concerned, I can't answer that question; I don't know.

Mr. ROBACK. You have no knowledge of it?

Mr. SMITH. No. It is possible that he did, but I am not aware of it.

Mr. ROBACK. Are there any other people with you who can throw any light on that question?

Mr. HOLIFIELD. Mr. Wells?

Mr. SMITH. During the time that we were in development difficulty with the larger engine, we had monthly meetings with the Bureau of Aeronautics, and Admiral Harrison was a party to some of those meetings.

Mr. ROBACK. Had any representations ever been made to you that unless your development progress was improved, the program would be washed out?

Mr SMITH. Yes, sir; I believe so.

Mr. ROBACK. Can you state the circumstances when or where that statement was made, that representation?

Mr. SMITH. We would have to consult records that we do not have with us to get the exact date.

Mr. BALWAN. Mr. Smith, have you been informed about the program called FIRM?

Mr. SMITH. I have heard about it, and I have listened to some of the testimony here.

Mr. BALWAN. Does it apply to engine manufacturers?

Mr. SMITH. I should think so; yes.

Mr. BALWAN. You intimate that you heard about it when you came here.

Mr. SMITH. I said I had heard about it and I have listened to the testimony here.

Mr. BALWAN. This is your first exposure to it?

Mr. SMITH. No, sir.

Mr. BALWAN. Excuse me, I misunderstood.

Just what is your understanding of the application of the FIRM program to the engine manufacturer?

Mr. SMITH. Well, if I may express in my own words what I think the desire is, what I think the object is, it is to have engines in a more fully developed state before they are made available for airframe manufacturers to design around.

Mr. BALWAN. What would that involve for Westinghouse, just what does that mean to Westinghouse?

Mr. SMITH. It means that we will have to have our engines in a more completed state of development before the Navy will consider procuring them, as I understand it.

Mr. BALWAN. Is this going to take more time?

Mr. SMITH. I think it means that we must start our development earlier.

Mr. BALWAN. There is a period, though, from the time you conceive an engine as against all the other developments in the aviation world both here and abroad. Does that mean it is going to take more time?

Mr. SMITH. It either means that it takes more time, or we have to find ways of doing it quicker, which may be possible.

Mr. BALWAN. Have you found those?

Mr. SMITH. I don't know that we have yet, but I think it is the object, and I think it is the object of everyone interested in the defense of the country, which we all are, to accomplish development and successful development more quickly. I believe that is the object of this program.

Mr. BALWAN. Do you believe that the application of the FIRM policy can do that?

Mr. SMITH. I think it may force us to do it faster.

Mr. ROBACK. What views do you have with regard to some kind of indemnity clause on failure to perform? Or do you think that would be discouragement to progress in aviation?

Mr. SMITH. Do you mean on development or production contracts, sir.

Mr. ROBACK. Well, on either; probably on production, but I will ask the question for either.

Mr. SMITH. I think for development it would serve to stop development. I don't think any responsible manufacturer would undertake the development of a complicated device with a heavy penalty of some kind in it if he didn't accomplish what he hoped to.

Mr. ROBACK. What about a penalty device in the manufacturing contracts?

Mr. SMITH. I think it would be a very great burden to the manufacturer of any complicated device to have a penalty clause on delivery.

Mr. ROBACK. Don't you believe that some kind of a dis-incentive or punishment might stimulate a producer to deliver on time?

Mr. SMITH. If we were an old, established industry, and dealing with something that was pretty much a stock item or an exact science, that might be true, but we are far from it.

Mr. ROBACK. Have you ever made any representations to the Navy that the terminations here should be at the convenience of the Government because it might be embarrassing to the company?

Mr. SMITH. No, sir; I never have, and I don't know of anyone in our division that has.

Mr. ROBACK. You don't know that anyone in your company ever initiated the decision?

Mr. SMITH. No, sir.

Mr. ROBACK. You know of no discussions which were had with representatives of the Navy?

Mr. SMITH. No, sir.

Mr. ROBACK. As far as you know, the decision was initiated and made final by the Navy?

Mr. SMITH. Yes, sir.

Mr. BALWAN. When did you first hear about FIRM?

Mr. SMITH. Well, I have been trying to recall since you brought it up, sir. I think that I first read about it in the papers as a matter of fact.

Mr. BALWAN. You read about it in the papers?

Mr. SMITH. I think so. I am not sure about that point.

Mr. BALWAN. Is any work that you do affected by FIRM?

Mr. SMITH. We are not at that stage right now, sir, in my division. We have either old contracts that are running toward their end or we have not received new ones as yet. We expect to be affected when and if we negotiate new contracts.

Mr. BALWAN. I would like to get your opinion on one of the statements in the FIRM policy which states that the frame manufacturer should have greater control and coordination in the manufacture of the aircraft?

Mr. SMITH. Would you please state that again?

Mr. BALWAN. It was stated by the Secretary of the Navy that the airframe manufacturer should have greater control and coordination in the manufacture of military aircraft. And I am asking for your judgment of such a statement.

Mr. SMITH. I don't see that it would seriously affect us.

Mr. BALWAN. The discussion yesterday evolved around what control the frame manufacturer has over the engine.

Mr. SMITH. That is right.

Mr. BALWAN. It was stated that they have none. That contract is strictly between Navy and the engine manufacturers. The Navy is going into a situation I presume in answer to criticism that we are having some trouble, how we might avoid it. One method was posed of giving the frame manufacturer more control over engines.

You don't have any observation on that.

Mr. SMITH. We don't have any objection to dealing with the airframe manufacturer instead of the Navy. That may present some problems for everyone if that is adopted.

Mr. HOLIFIELD. Before you leave the stand, Mr. Smith, I want to bring up a completely different problem related to the time element in the production of aircraft engines and aircraft frames, as I understand it. The Army and Navy Air Force Journal in October 8 carries an article in which it states that Deputy Secretary Reuben D. Robertson, Jr., has issued a directive limiting advances to military contractors to 105 percent. It states further that there has been some protest from different aircraft producers and parts producers and the General Accounting Office has said that according to their information there has been over $600 million in overpayments to large contractors under the previous method of paying more than 105 percent against a target price.

And they state that one west coast aircraft firm was found to have $52 million in the bank drawing interest and awaiting instructions for refunding to the Government. It further says a more alert eastern aircraft firm had assets of $30 million in short-term bonds which were earmarked "reserve for refunds on definite contracts."

GAO officials have stated that overpayments are of course Federal funds and all the interest they earn the Federal Government is entitled to. Does your company have any such reserve set aside?

Mr. SMITH. My division has no contracts in which this is involved at the moment.

Mr. HOLIFIELD. As far as you know the Westinghouse Co. has no such overpayment of funds at this time?

Mr. SMITH. Mr. Chairman, I have no knowledge of any part except my own division, and I know we haven't.

Mr. HOLIFIELD. Mr. McDonnell, I would like to ask you the same question.

Mr. MCDONNELL. I will call on our manager of contracts, Mr. Murray, Mr. Chairman.

Mr. MURRAY. We have never been in such a fortunate position to have a refund of that size. Under incentive fixed price contracts, it is natural that there will be either a refund to the Government on the part of the contractor, which means that the contractor has performed at less than the target cost and the Government receives most of the savings or that he has exceeded his target cost and the Government in that case will owe him money. Our company is in a position right now of not having any reserves or owing the Government any refunds against incentive contracts.

Mr. HOLIFIELD. Thank you, sir.

Mr. Roback?

Mr. ROBACK. Mr. Smith, how long have you been with Westinghouse?

Mr. SMITH. Two years the 1st of next January.

Mr. ROBACK. Some of the questions I asked predated your association with the company?

Mr. SMITH. Yes, sir.

Mr. ROBACK. So when you say you have no knowledge of some of these things, you are speaking merely from the standpoint of what you know, not from the standpoint of what occurred?

Mr. SMITH. I am also speaking from an effort I have made to get as much information on this subject as possible prior to the hearing.

Mr. ROBACK. Have you heard during the course of this hearing statements made by Navy officials that your company was the least aggressive with respect to research investment?

Mr. SMITH. I don't think there is any question about that. I don't personally know of those statements, but I do know that was the feeling on the part of the Navy. I know it was recognized by the top management of Westinghouse and it was discussed with me when I was employed.

That was one of the things they asked me to correct. A part of my assignment was to bring about or implement a more aggressive program in that direction.

Mr. ROBACK. What were the circumstances leading to the withdrwal of a Navy proposal to finance all or part of the move to Kansas City?

Mr. SMITH. As far as I know, it was never the intention of the Navy to finance that move. I have gone into that quite thoroughly, and I can't find any evidence that the Navy ever contemplated paying that expense. Westinghouse had contemplated the move for some time and for one reason and another this had not been accomplished. It was one of my duties, and it was made clear when I was employed

that that was one of the first things I was to accomplish, was to effect the move. But it was also my understanding that it was to be done at our expense and no part of it to be Navy expense.

Mr. ROBACK. Does this include both the production and research facilities?

Mr. SMITH. Yes, sir.

Mr. ROBACK. What is represented by Government investment in your research and production facilities now? I am talking about aircraft engines.

Mr. SMITH. I didn't quite understand.

Mr. ROBACK. What kind of facilities—this is a Government-owned facility which you are located in. Will you describe that?

Mr. SMITH. The plant and the land and a large part of the equipment is Government-owned and leased to us.

Mr. ROBACK. Mr. Chairman, various estimates have been made by other witnesses here with respect to performance or nonperformance by Westinghouse. I think the witness should be extended an invitation at this point to make any comments on any testimony that he considers derogatory, because as I understand it this is his last appearance at this hearing.

Mr. HOLIFIELD. Mr. Smith, it was my intention, as the counsel has said, to extend to you an invitation to volunteer any information or comment on any testimony that has been given to this subcommittee so that your position will be fairly shown on the record. If there is anything else you have to volunteer at this time, why we will accept it.

Mr. SMITH. I have nothing further to say other than we have already discussed and presented.

Mr. HOLIFIELD. Thank you very much. Do you feel you have had a fair hearing?

Mr. SMITH. Yes, sir; I do.

Mr. LIPSCOMB. Mr. Chairman?

Mr. HOLIFIELD. Mr. Lipscomb.

Mr. LIPSCOMB. On page 8 of your statement you state that your company has invested $8 million of your own money to develop a new engine, the PD–33.

Mr. SMITH. Yes, sir.

Mr. LIPSCOMB. Is that development for the military services or commercial?

Mr. SMITH. It is intended to be a development—it was developed with the idea of selling it to the military services. We hope to sell it to the military services. We know of no commercial application for it.

Mr. LIPSCOMB. You have received no Government money for the research and development for this particular engine?

Mr. SMITH. No, sir.

Mr. LIPSCOMB. Do you think the Government should finance the research and development of jet engines?

Mr. SMITH. I don't think we can answer that "yes" or "no." I think if the services have a specific requirement, if they have a problem, they have to have an item to take care of that problem; if they need it and bring it to some company and ask that they do it, I think it would be supported. In a case of this kind I think it is perfectly proper that we should do the initial work on our own money and demonstrate that we have an idea that is worth developing.

Mr. LIPSCOMB. The J40 was developed with Government money; was it not?

Mr. SMITH. Yes, sir.

Mr. LIPSCOMB. Do you think the Government could spend more money in the research and development of jet engines?

Mr. SMITH. The more money that is spent on the research and development in any line, the more results we will get.

Mr. LIPSCOMB. Doesn't this have something to do with the whole problem we are discussing in these hearings that we must get bigger and better jet engines faster?

Mr. SMITH. We must get better jet engines and get them faster; I don't know that they need to be bigger.

Mr. LIPSCOMB. More thrust and more weight?

Mr. SMITH. I am not sure they need to be more thrust. You are correct that we should have better engines and do everything we can to develop them faster because we don't have as much time as we used to.

Mr. LIPSCOMB. Isn't the reason that the F3H doesn't perform satisfactorily because you don't have enough thrust in it?

Mr. SMITH. Because we were not able to bring a higher thrust engine through fast enough.

Mr. LIPSCOMB. If the Government put more emphasis on spending more money on research and development it might be helpful.

Mr. SMITH. The only thing, Mr. Lipscomb, is that we have to have some general idea of the application; we can't just spend money without any place to use it.

Mr. LIPSCOMB. Well, on this particular engine that you developed at your own expense, what were you going to do, turn that over to an airframe manufacturer and have him build a plane around it?

Mr. SMITH. We made a survey when we started this engine to try to find what in our opinion would be a suitable size, a size where there would be a demand for it by the time we could have it ready. This is our best judgment of that size. Let me say that we had been slow on our development as was demonstrated in the J40, we were slow in getting into production on some of our other engines. This engine was an effort on our part to demonstrate that we had corrected some of the difficulties that made the case.

Mr. LIPSCOMB. How long have you been working on this engine?

Mr. SMITH. We have been working on this engine a little over 2 years now. It was operating in 15 months—we had completed our 50-hour endurance test 3 days over 15 months from the time we started the design. But that record was made possible by the fact that we had made available to ourselves the Rolls Royce labs in England. Our own lab was not ready and we were able to do a great deal of component testing in the labs at Rolls Royce. Otherwise this 15 months' time might not have been possible. In the future we hope to have our own lab to do that in Kansas City.

Mr. LIPSCOMB. You say there were five factors that contributed to your problems in the development of J40 engine and one was lack of technical manpower on the jet engine work, yet at the same time you were having trouble with the J40 you were developing another engine the PD33.

Mr. SMITH. No, sir; the PD33 was started April 1, 1954. It was a very recent development. This engine is a very new item.

Mr. LIPSCOMB. If you could develop that, I don't see why we didn't get an engine that would work in F3H–1 or –2.

Mr. SMITH. The art has progressed a great deal in the time since we started the J40 and the time we started the PD33.

One of the things that we lacked—there were two things that we lacked in the J40 development.

One was an adequate compressor and turbine lab and another was an experimental shop that was devoted exclusively to the building of experimental parts.

We have corrected both of those items in the case of our more recent work. We have had the labs available for component development. We have also had an experimental shop where we could build our own parts without any interruption from anything else.

Mr. LIPSCOMB. Why couldn't those changes have been inserted into the J40–22 in some fashion, and make the F3H work?

Mr. SMITH. The J40 was gone by the time this engine was an actuality. It is too late.

Mr. LIPSCOMB. The J40–22 are just now coming off the assembly line?

Mr. SMITH. It is an entirely different concept of an engine. It would mean starting all over it again.

Mr. LIPSCOMB. That is what we are doing about it. What does it mean on page 5 of your statement where all in all there were delivered 107 J40–22 engines? Will some of this be in this "as canceled" condition?

Mr. SMITH. Yes, sir.

Mr. LIPSCOMB. What does that mean?

Mr. SMITH. The last 40 engines that were delivered as engines were broken down by some of them which had completed their final test as is customary: Green run, teardown, rebuild, and finally run; which is the normal acceptance procedure. I don't know the exact numbers, some of them had completed all of that. Some of them were in the state of being torn down and rebuilt after green run. Those were put back together and delivered in a container without being given the final run. There were others that were in the process of the green run. They were given a successful green run and then they were delivered in the can. There were others that had not yet gotten to the test but were in the final stages of assembly. They were given a green run only and the resulting cost reduction was passed on to the Government and adjustment was made on those engines. It was our feeling since they were not to be used in flight but were to be put in storage for some other possible application, there was no point in spending the additional money for the final run. The engines should be completed at as little expense as possible and yet delivered as a complete item that could have some value other than scrap value at some future date, so the last 40 of this 107 are in that condition.

I can get the exact figures if you wish to have them.

Mr. HOLIFIELD. But they were completely assembled.

Mr. SMITH. They were completely assembled and had all completed a green run.

Mr. LIPSCOMB. Would it be possible to put these engines in the airframe and then test these on the grounds and do all the things that the Navy can do?

Mr. SMITH. They can be tested on the ground. But if they are subjected to flight, those that did not have the final run should come back and have the final run.

Mr. HOFFMAN. Do you mean to say the Navy accepts an engine for a plane when that is completed, when it has completed the test on the ground?

Admiral RUSSELL. The Navy does accept turbojets, turbojet engines without having run them in the air. They run through a green run and then they are torn down and examined and put together and run again. We say then they are O. K. We take them and put them in an airplane and run them.

Mr. HOFFMAN. Do you pay for them before you put them in the air?

Admiral RUSSELL. Yes, sir.

Mr. HOFFMAN. I think that is silly.

Admiral RUSSELL. No.

Mr. HOFFMAN. I can't figure out why anybody is taking them. These engines run on the ground all right, but they come down when they go up in the air.

Admiral RUSSELL. This is an engine of proven design. I had identical engines which have been flying.

Mr. HOFFMAN. I thought you were talking about a new model.

Admiral RUSSELL. Absolutely not. We would certainly put it in a wind tunnel to find out how it works at high altitude.

Mr. HOFFMAN. I understood the test pilots' testimony to be to the effect that while all the tests made down below might be all right, when he got up above something might go wrong they had not found out about. The conditions up there are a little different.

Admiral RUSSELL. There is always that possibility. It is a hazardous occupation.

Mr. HOFFMAN. If you draft me to go up above, you will have to test one to see that it flies before I go.

I have some questions I would like to ask this gentleman.

Mr. HOLIFIELD. Go ahead.

Mr. HOFFMAN. Westinghouse isn't much of a company then, is it, judged by performance?

Mr. SMITH. I can't agree with that, Mr. Hoffman.

Mr. HOFFMAN. I didn't think you would. That is the intimation here and that is what I gathered from things I have heard.

We will go back to your statement. You say in the last 2 years Westinghouse has spent $20 million of its own money in research and development.

Mr. SMITH. That is correct, research and development and facilities.

Mr. HOFFMAN. But in this article it says you have not spent enough. You have a cash reserve of $344 million; General Electric, a much bigger company, has $307 million; but you fellows are behind the times in pushing your investigations. What do you think about that?

Mr. SMITH. I think in the past 2 years we have pushed our research and development programs as rapidly as we should in the circumstances.

Mr. HOLIFIELD. Mr. Hoffman, will you identify the document from which you quoted those figures for the reporter's benefit and the record's benefit?

Mr. HOFFMAN. I don't want to get into any controversy. This publication is a very powerful political one. I object to this laughing. This is a very serious matter with me.

Mr. HOLIFIELD. We will have order in the chamber.

Mr. HOFFMAN. It embarrasses me and confuses me. Don't you see? I can't ask these questions. If you must know, it is Time, October, this appears under a heading "The Problems of Westinghouse." Assuming that the people who own this Time magazine and write for it have no interest in the stock market and aren't trying to depress the value of Westinghouse shares, they do tell here that your stock fell off from 83 to 55⅜ not so long ago; is that right?

Mr. SMITH. I am familiar only with my division.

Mr. HOFFMAN. Do you own any stock?

Mr. SMITH. Yes, sir.

Mr. HOFFMAN. So you have a financial interest in getting a profit out of it.

Mr. SMITH. I have.

Mr. HOFFMAN. They say you dropped off in profits too; is that right?

Mr. SMITH. Yes, sir.

Mr. HOFFMAN. Do you think you put too much money in experimenting?

Mr. SMITH. No, sir.

Mr. HOFFMAN. Are you willing to put any more?

Mr. SMITH. Yes, sir.

Mr. HOFFMAN. Then they say Betty Furness has hurt your company with her comments on TV, your sales generally; do you know anything about that?

Mr. SMITH. I am in no position to comment.

Mr. HOFFMAN. They say the rival unions have been raising hob with you. In 9 months you have had 64 work stoppages and you have lost 5 million hours' production.

Mr. SMITH. We have——

Mr. HOFFMAN. You are the victim, it says, of labor troubles growing out of the rivalry of two unions up there.

Mr. SMITH. Not in my division.

Mr. HOFFMAN. That is somewhere else.

Mr. SMITH. We had some difficulty with labor all through the early part of this year and the latter part of last in my division but it was a different thing than that.

Mr. HOLIFIELD. With all due respect to my colleagues' comments, do you think it is pertinent to the inquiry?

Mr. HOFFMAN. I wouldn't ask it if it isn't. It says next week that Westinghouse faces more trouble. House Military Operations Committee opens public hearings on the Navy's fighters. Does that help your company's position with reference to competitors?

Mr. SMITH. I doubt it very much.

Mr. HOFFMAN. I understand there are five big companies that can make engines for planes.

Mr. SMITH. There are five major engine companies.

Mr. HOFFMAN. If they put you out of business, the Government will lose one of those bidders, won't it?

Mr. SMITH. Yes, sir.

Mr. HOFFMAN. And help the other four; is that right?

Mr. SMITH. I presume it would help them.

Mr. HOFFMAN. That is self-evident, isn't it?

Mr. SMITH. Yes.

Mr. HOFFMAN. So if they can just black the name of Westinghouse, they also say you are no good on commercial items. Well, I wouldn't say no good, but not as good as the others.

Mr. HOLIFIELD. The member is not contemplating that this committee is attempting to blacken anybody's financial position.

Mr. HOFFMAN. Certainly not. I have not any such ideas. I am just calling attention to this propaganda the natural result of which is to depress the stock market and put them in a position where they will not be on a level with other competitors for making motors. That is all I am trying to do.

Mr. HOLIFIELD. I call attention to the member that this matter has been discussed at length in the press and even complete stories have been carried in the press about all concerned, according to their statements to me, and that this committee is giving them an opportunity to put the facts on the record, the complete facts on the record that they wish to put on the record so that the public can judge on facts and not——

Mr. HOFFMAN. On articles like this one and any other articles. I am in complete accord with the chairman on this thing. I think it should be investigated and the facts will be before the public and statements like this, even if they are true. Unless it would help some speculator in stocks, I don't see how that kind of a statement can help the Government get better planes or help the company make better planes, that is the only point I had in mind. I am not in any way questioning the motives of anybody connected with the committee or the staff. I think I said that before. As I understand it too, and if I am wrong I would like to be corrected by the spokesman for the Navy. I understood that the Navy after this now designated as a defective engine—whether it was or was not, that is a way of identifying it—that after the trouble with that was discovered the Navy still wanted you to go ahead and wanted you to improve that engine. Is that right or wrong?

Admiral RUSSELL. That is up to a certain point. We finally gave up on the 7th of July when we canceled everything.

Mr. HOFFMAN. Up until the time you canceled you were urging Westinghouse to try to fix the thing.

Admiral RUSSELL. That is right, sir.

Mr. HOFFMAN. That is all I have, Mr. Chairman.

Mr. HOLIFIELD. At this time we will go into executive session. The room will be cleared of those who are not cleared for security and we will give the Navy and the McDonnell people an opportunity to show charts which I understand they have which deal with security matters.

Mr. SMITH. May I thank the committee for this opportunity?

Mr. HOLIFIELD. Thank you, Mr. Smith. I know you are cleared. You are welcome to stay if you want to stay, you and your staff if they are cleared. You take the responsibility.

Mr. SMITH. Yes, sir; we are cleared.

Mr. HOLIFIELD. There will be further public hearings tomorrow at 10 o'clock.

There will be some further questioning of the Navy and the McDonnell people tomorrow morning and unless there are facts developed in the executive session, the other witnesses will not be called unless they request to be called.

(Whereupon, at 3:50 p. m., the subcommittee proceeded to further business.)

NAVY JET AIRCRAFT PROCUREMENT PROGRAM

THURSDAY, OCTOBER 27, 1955

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON MILITARY OPERATIONS OF
THE COMMITTEE ON GOVERNMENT OPERATIONS,
Washington, D. C.

The subcommittee met, pursuant to adjournment, at 10:05 a. m., in room 1310, New House Office Building, Hon. Chet Holifield (chairman of the subcommittee) presiding.

Present: Representatives Holifield, Garmatz, and Lipscomb.

Also present: Michael P. Balwan, staff director; Herbert Roback, director of investigations; James F. Eckhart, assistant counsel; Earl J. Morgan, investigator; and Robert J. McElroy, investigator.

Mr. HOLIFIELD. The subcommittee will be in order.

Mr. McDonnell, will you and your test pilot, Mr. Little, please take the stand?

Mr. ALDRIDGE. Mr. Chairman, Mr. McDonnell hasn't arrived yet. I will substitute for him until he does.

Mr. HOLIFIELD. I think we will just wait for him.

Admiral Harrison, will you please take the stand at this time? The purpose of this meeting this morning is to clear up a few areas or gaps in the testimony for the record in order that we may have a complete record. We hope that we will be able to finish the hearings by noon today. If necessary, however, we will have to carry over into the afternoon. At this time, Mr. Roback, do you have some questions?

Mr. ROBACK. Yes. Admiral Harrison, what is your understanding as to the effect on the McDonnell airframe contract if the engine contract had been terminated in November of 1952?

FURTHER TESTIMONY OF LLOYD HARRISON, UNITED STATES NAVY (RETIRED), VICE PRESIDENT, PROCUREMENT, McDONNELL AIRCRAFT CORP.

Mr. HARRISON. Had the engine contracts been completely terminated and the engines restricted, the net result expected could have been no test flying until and if the J71 engines were successful by its flight justification tests.

Mr. ROBACK. What would have happened to the McDonnell airframe contract from the standpoint of production and delivery?

Mr. HARRISON. So far as deliveries are concerned, obviously there would be no deliveries without engines.

Mr. ROBACK. When you made a decision to take your present employment did you discuss that matter in the Navy, with officials in the Navy?

Mr. HARRISON. Are you speaking of the question you were examining yesterday?

Mr. ROBACK. Yes.

Mr. HARRISON. I have had no discussion nor have I submitted for examination any of my papers to the Navy concerning this question.

Mr. ROBACK. Have you consulted legal advice with respect to the employment?

Mr. HARRISON. With respect to what?

Mr. ROBACK. Did you consult, did you seek legal advice with respect to the legality of the employment?

Mr. HARRISON. I have consulted no one with respect to the legality of my new employment with McDonnell. I have examined very carefully a Navy Department issued paper which sets forth in detail the limitations on employment of a retired officer. I have that paper in my brief case, I believe, should the committee wish to examine into it.

Mr. ROBACK. What does the Navy policy statement say with respect to a Navy officer taking such employment?

Mr. HARRISON. Will you repeat the question, Mr. Roback?

Mr. ROBACK. Is there anything in the Navy policy statement which bears upon the propriety or the advisability of Navy officers taking employment of this nature?

Mr. HARRISON. This particular reference guide is addressed entirely to this general subject, and in it it makes clear that retired officers shall not engage in sales activity for 2 years after retirement with any agency of the Department of Defense, and forever with regard to the Department with which they have been retired.

Essentially that is the only prohibition as I understand it of consequence in connection with retirement of the sort which I have.

Mr. ROBACK. Mr. Chairman, may we have for the record from the Navy witnesses a copy of that statement?

Mr. HOLIFIELD. Admiral Russell, will you furnish us with a copy of this statement?

Admiral RUSSELL. This is such a copy.

(The statement referred to is as follows:)

REFERENCE GUIDE TO EMPLOYMENT ACTIVITIES OF RETIRED NAVAL PERSONNEL

Revised edition, September 1, 1954

I. GENERAL RULE

Officers on the retired lists of the United States Navy and Marine Corps remain officers of the United States Government. Accordingly, retired officers are contemplated by the penal, prohibitory, and restrictive statutes relating generally to civil employment of officers unless they are specifically excepted or unless any such statute has been held not to apply to particular classes of officers.

As a consequence of this continuing status, retired officers may not engage in any activity which would conflict with the interests of the Government (40 Op. Atty. Gen. 183 (1942), C. M. O. 2-1948, 46). The fundamental principle which underlies statutory restrictions on the activities of military personnel is, in the words of the Attorney General of the United States, that "no Government official or employee should serve two masters to the prejudice of his unbiased devotion to the interests of the United States" (33 Op. Atty. Gen. 273, 275).

The question of what civil employment and compensation a retired officer of the Navy may legally accept without prejudice to the rights and benefits of his retired status must be determined by the retired officer concerned on his own responsibility. The Attorney General of the United States has advised that it is not for the Department of the Navy to decide in any particular case whether

the prospective employment of a retired officer would come within the prohibition of any statute (21 Op. Atty. Gen. 510; C. M. O. 1–1941, 179; C. M. O. 2–1939, 181). In accordance with the above-cited opinion of the Attorney General the policy of the Department of the Navy with respect to the question of advising retired officers relative to civilian employment was defined in a memorandum of this office, as follows:

"The question as to whether a retired officer may legally accept a civilian appointment and still hold his position on the retired list is one of private concern only and not a subject with which the United States can concern itself until some action has been taken by the retired officer. The obvious course for any retired officer called upon to determine that question is to seek the advice of private counsel, since it is one strictly of private concern and in no sense of public interest" (File OR/P16–3 (18) (330 210–2) of September 14, 1935).

It should therefore be borne in mind that the Judge Advocate General is not in a position to render an opinion in most cases of this nature which would be binding upon the Government (File JAG: II: HJM: amp, May 24, 1943). The interpretation of the restrictions involved comes within the functions of other governmental agencies, for example, the construing of criminal statutes is a function of the Department of Justice and of the courts, while authoritative interpretation of statutes relating to the compensation of military personnel is a matter within the cognizance of the Comptroller General of the United States. Opinions, therefore, at any time expressed by the Judge Advocate General on this general subject must be considered as advisory only.

II. RESTRICTIONS UPON FEDERAL EMPLOYMENT

The basic provision of law underlying the right of retired officers to hold a civilian position or office with the Federal Government while receiving retired pay is the act of July 31, 1894 (28 Stat. 205), as amended (5 U. S. C. 62), commonly known as the dual employment statute, which reads as follows:

"No person who holds an office the salary or annual compensation attached to which amounts to the sum of two thousand five hundred dollars shall be appointed to or hold any other office to which compensation is attached unless specifically authorized thereto by law; but this shall not apply to retired officers of the Army, Navy, Marine Corps, or Coast Guard whenever they may be elected to public office or whenever the President shall appoint them to office by and with the advice and consent of the Senate. Retired enlisted men of the Army, Navy, Marine Corps, or Coast Guard retired for any cause, and retired officers of the Army, Navy, Marine Corps, or Coast Guard who have been retired for injuries received in battle or for injuries or incapacity incurred in line of duty shall not, within the meaning of this section, be construed to hold or to have held an office during such retirement."

Under the terms of this statute retired officers in receipt of retired pay are prohibited from holding a civilian position or office with the Federal Government where either the rate of retired pay or the rate of compensation fixed for the civilian position or office amounts to $2,500 per annum unless (1) elected thereto, (2) appointed by the President with the advice and consent of the Senate, or (3) retired for injuries received in battle or for injury or incapacity incurred in line of duty (13 Comp. Gen. 60; 21 Comp. Gen. 1129). Retired officers receiving retired pay of $2,500 or more per annum may not avoid the application of this statutory prohibition by retaining their retired office and waiving their retired pay during occupany of the civilian position or office (14 Comp. Gen. 289). It should be noted, however, that the provisions of the foregoing statute do not affect the right of a retired enlisted man, retired for any reason, even though subsequently advanced to commissioned grade on the retired list, to hold another office or position regardless of the pay attached thereto (*Grant* v. *United States*, 41 F. 2d 863; 26 Comp. Gen. 271; 25 Comp. Gen. 521).

The restrictions upon employment discussed in the previous paragraph do not preclude the employment of retired officers of the Navy in a number of instances, including among which are the following:

(1) The employment of retired officers of the Navy to engage in work under the direction of the Chief of Engineers of the United States Army in connection with the improvement of rivers and harbors of the United States (5 U. S. C. 63).

(2) The appointment of retired officers of the Navy to positions as Director or Assistant Director of the Bureau of the Budget (5 U. S. C. 64; 31 U. S. C. 16).

(3) The appointment of retired officers of the Navy to positions in the diplomatic or consular branches of the Foreign Service of the United States (34 U. S. C. 226).

(4) The employment of retired officers and warrant officers by the Veterans' Administration until August 10, 1956 (5 U. S. C. 64a).

(5) The employment of a limited number of retired commissioned and warrant officers by the Central Intelligence Agency (50 U. S. C. 403f).

(6) The temporary employment or service of a retired officer, regardless of whether the appointment be as a consultant, expert, or otherwise, whenever the employment is in fact temporary, either because the position is temporary or the employment is temporary for the reason that only a special or particular task is to be performed, and the order or letter of appointment states that the employment is temporary (26 Comp. Gen. 231; 30 id. 406, 407; 30 id. 371, 372; 31 id. 414).

(7) The appointment of a retired officer as Director of the Division of Military Application or Chairman of the Military Liaison Committee of the Atomic Energy Commission (42 U. S. C. Sup., 1802 (d)).

(8) The employment of a retired officer of the Navy in any work or service for which the funds made available by the United States Government are intermingled with non-Federal funds and the compensation of the retired officer is paid from such intermingled funds (14 Comp. Gen. 916; 23 id. 744).

(9) The employment of retired officers in any office or position as provided for by the Mutual Security Act of 1951 or the Mutual Defense Assistance Control Act of 1951 (66 Stat. 147).

(10) Military science teachers in District of Columbia high schools (66 Stat. 466).

(11) Members of Boxing Commission of the District of Columbia (64 Stat. 466).

The provisions of the above-quoted dual employment statute do not apply to retired Reserve officers retired for any reason—irrespective of whether such officers are in receipt of retired pay (28 Comp. Gen. 588; secs. 246 and 804 (a) of the Armed Forces Reserve Act of 1952, approved July 9, 1952, 50 U. S. C. 981).

In addition to the restrictions on Federal employment, in view of article I, section 9, clause 8, of the Constitution, retired Regular officers may not, without the consent of the Congress, accept an office from or employment with a foreign government, whether of a civil or military nature (C. M. O. 3–1934, 13; id. 1–1942, 258; id. 4–1943, 116). With respect to the employment of members of the Reserve components (including retired Reserve officers), by a foreign government, section 247 of the Armed Forces Reserve Act of 1952 (66 Stat. 495, 50 U. S. C. 982) provides as follows:

"SEC. 247. Members of the Reserve components, subject to the approval of the appropriate Secretary, may accept civil employment with and compensation therefor from any foreign government or any concern which is controlled in whole or in part by a foreign government."

A retired naval officer is precluded from working, with or without remuneration, for a foreign company or individual which is in competition with American industry (Executive Order No. 5221, Dec. 11, 1929; LRNA, 1527).

III. RESTRICTIONS ON PAY

Although a retired officer of the Navy may be eligible for employment in a Federal position, he will, upon acceptance of such position, be subject to the provisions of section 212 of the act of June 30, 1932 (47 Stat. 406), as amended (5 U. S. C. 59a), as further amended by Public Law 300, 83d Congress, approved February 20, 1954 (68 Stat. 18), the so-called dual-compensation statute, which limits the aggregate income from a Federal civilian position, whether elective or appointive, and retirement pay, to an amount not to exceed the rate of $3,000 per annum. Section 212 of the act of June 30, 1932, as amended, supra, reads as follows:

"(a) After June 30, 1932, no person holding a civilian office or position, appointive or elective, under the United States Government or the municipal government of the District of Columbia or under any corporation, the majority of the stock of which is owned by the United States, shall be entitled, during the period of such incumbency, to retired pay from the United States for or on account of services as a commissioned officer in any of the services mentioned in title 37 at a rate in excess of an amount which when combined with the annual rate of compensation from such civilian office or position, makes the

total rate from both sources more than $3,000; and when the retired pay amounts to or exceeds the rate of $3,000 per annum such person shall be entitled to the pay of the civilian office or position or the retired pay, whichever he may elect. As used in this section, the term 'retired pay' shall be construed to include credits for all service that lawfully may enter into the computation thereof.

"(b) This section shall not apply to any person whose retired pay, plus civilian pay, amounts to less than $3,000: *Provided*, That this section shall not apply to regular or emergency commissioned officers retired for disability (1) incurred in combat with an enemy of the United States, or (2) caused by an instrumentality of war and incurred in line of duty during an enlistment or employment as provided in Veterans Regulation Numbered 1 (a), part I, paragraph I."

Section 2 of the said act of February 20, 1954, supra, provides that the amendment made by that act, i. e., substituting the phrase "caused by an instrumentality of war" for the former restriction "resulting from an explosion of an instrumentality of war," shall take effect as of January 1, 1951.

The foregoing provision of law is applicable to all officers reeciving retired or retirement pay for or on account of commissioned service, including those advanced on the retired list to commissioned grade (25 Comp. Gen. 521; 26 Comp. Gen. 271). In simple terms, the sense of this statute is that the total combined rate of income derived from a Federal civilian position (whether elective or appointive) and from retirement pay shall not exceed the rate of $3,000 per annum.

If the annual rate of retired pay being paid a retired officer exceeds the rate of $3,000 per annum, the officer must elect to receive either his retired pay or the pay of his civilian office or position. In this connection should the officer give up his retired pay, he wil become entitled to have payment of such pay resumed upon relinquishing his civilian office or position. On the other hand, if the rate of retired pay and the compensation of the civilian office or position to be paid a retired officer are both less than $3,000 per annum but together exceed $3,000 per annum, the officer is entitled to receive all of the compensation from the civilian office or position to which may be added so much of his retired pay as necessary to make the combined rate or total compensation $3,000 per annum. For example, if an officer receiving retired pay of $2,900 per annum is employed in a Federal civilian office or position at a salary of $2,800 per annum, he would be entitled to receive the $2,800 plus $200 from his retired pay to make a net rate of $3,000 per annum (12 Comp. Gen. 37, 47 (1932)). If the rate of retired pay and the compensation to be received from the civilian office or position both exceed the rate of $3,000 per annum the officer may waive his retired pay in its entirety and receive, unrestricted, the compensation from employment with the Federal Government. Also in this connection if the officer waives his retired pay, he would be entitled to have payment of the amount so waived resumed upon termination of his civilian employment (C. M. O. 2-1947, 40). The limitation delineated above restricting the combined rate of compensation to $3,000 per annum "is not against the retaining of the retired status but is that 'no person holding a civilian office * * * shall be entitled, during the period of such incumbency, to retired pay from the United States * * * as a commissioned officer.' Similarly the right of election given under the statute is not as to whether he shall continue to hold his retired status, but is as to whether he shall accept the pay of the one or the pay of the other" (Comp. Gen. Aug. 9, 1932, A-43761).

In computing the amount of pay in the case of temporary or part-time employment, the annual rate of compensation of the job on a full-time basis is used in determining the applicability of this statutory provision (26 Comp. Gen. 231). However, if a definite limitation on employment is made in the contract to a specific number of hours per day or days per week, month, or year, and the contract also provides for payment only when the officer is actually employed, the statute is not applicable if the total amount of the two compensations which may be paid does not exceed the rate of $3,000 per annum.

The $3,000 limitation contained in the act upon the combined rate of retired pay and pay from a Federal civilian position is applicable, in the case of a retired officer intermittently employed as a consultant on atime basis, only on the days he receives compensation from his civilian position, and on all other days, including Saturdays, Sundays, and holidays, when he is not performing civilian duties, he is entitled to retired pay (31 Comp. Gen. 126; 28 *id.* 381; but see 28 Comp. Gen. 103 holding that retired officers who are regular, full-time employees on a 40-hour week are not entitled to receive retired pay on Saturdays, Sundays, and holidays).

The statute is likewise not applicable to commissioned officers retired for disability either "incurred in combat with an enemy of the United States," or "caused by an instrumentality of war in line of duty during an enlistment of employment as provided in Veterans Regulation Numbered 1 (a), part I, paragraph I." It has been held that for a given disability to come within either of the two foregoing exceptions a direct causal relationship must be established between that disability and either combat with an enemy or the operation of an instrumentality of war (JAG : II : 2 : WEN : mk of Nov. 23, 1953, and cases there cited). It is primarily a matter for determination by the medical authorities as to whether there exists the requisite causal relationship between the disability upon which retirement was based and the service or instrumentality which may respectively be held to be combat or an instrumentality of war (Comp. Gen. decision B–55205 of Dec. 16, 1947 ; C. M. O. 2–1948, 73, 76 ; JAG : II : 2 : WEN : mk of Nov. 23, 1953, and cases therein cited). It should be noted that even though a disability has been caused by an instrumentality of war, still the causation must have occurred within one of the periods of hostilities as defined by Veterans Regulation Numbered 1 (a), part I, paragraph I (published in title 38, U. S. C., at beginning of ch. 12A). The Comptroller General has indicated that great weight is to be acorded the administrative determinations of the department concerned as to the basis and causation for physical disability retirements of officers serving under the jurisdiction of the department (Comp. Gen. decision B–55205 of Dec. 16, 1947 ; id, B–44091 of May 9, 1947 ; see also C. M. O. 2–1948, 73).

The provisions of section 212 of the 1932 act are not applicable to warrant officers and enlisted personnel not drawing pay based on services as commissioned officers. This result obtains even though the warrant officer or enlisted member may have had prior service in a commissioned grade with which he is credited for longevity purposes toward retirement (25 Comp. Gen. 521, 530). Where the provisions of section 212 are not applicable a retired member may draw both his retired pay and the pay of a civilian position.

It may be noted that pursuant to the sixth proviso of section 511 of the Career Compensation Act of 1949 (37 U. S. C. 311) retired enlisted persons and warrant officers advanced on the retired list to a commissioned officer rank under any provision of law shall upon application to the Secretary of the Navy within 1 year after being so advanced, and with the approval of the Secretary, be restored to their former enlisted or warrant officer status, for all purposes, including exemption thereafter from the restrictions of section 212 of the 1932 act. Only one such election to revert to permanent enlisted or warrant officer status is permitted, however, so that having been exercised the election is irrevocable (29 Comp. Gen. 179).

The Comptroller General has held that the restrictions of the so-called dual compensation statute do apply to reserve officers employed in Federal civil positions (28 Comp. Gen. 367 ; id. 588).

By way of rounding out this picture of Federal employment in consonance with the terms of the dual compensation statute, it should be noted that under the provisions of the act of May 27, 1944 (58 Stat. 230 ; 38 U. S. C. 26c), retired naval personnel in receipt of retirement pay, who would be eligible to receive pension or compensation under laws administered by the Veterans' Administration if they were not receiving such retirement pay, may waive their retirement pay and receive instead compensation from the Veterans' Administration, for the purpose of accepting the pay connected with civilian Federal employment. The receipt of such compensation from the Veterans' Administration would not be limiting in any way upon the pay received from such employment. Upon terminating the civilian Federal employment, such personnel may elect to have payment of their retired pay resumed in lieu of continuing to receive compensation from the Veterans' Administration (28 Comp. Gen. 484).

IV. RESTRICTIONS UPON APPROPRIATIONS WHERE RETIRED OFFICERS ENGAGED IN PARTICULAR TYPES OF PRIVATE EMPLOYMENT

There are two provisions of law which prohibit the payment from appropriations made by the Congress of retired pay to retired officers of the Navy under conditions defined in these two statutes. The first of these provisions of law is section 1 of the act of June 10, 1896 (29 Stat. 361), as amended (34 U. S. C. 883), providing as follows:

"After July 22, 1935, no payment shall be made from appropriations made by Congress to any officer in the Navy or Marine Corps on the active list while such officer is employed, after June 30, 1897, by any person or company furnish-

ing naval supplies or war materials to the Government, and such employment is hereby made unlawful after said date: *Provided*, That no payment shall be made from appropriations made by Congress to any retired officer in the Navy or Marine Corps who for himself or for others is engaged in the selling of, contracting for the sale of or negotiating for the sale of, to the Navy or the Navy Department, any naval supplies or war material."

The second provision is section 1309 of the act of August 7, 1953 (5 U. S. C., Supp. 1, 59c), which provides as follows:

"No payment shall be made from appropriations in any Act to any officer on the retired lists of the Regular Army, Regular Navy, Regular Marine Corps, Regular Air Force, Regular Coast Guard, Coast and Geodetic Survey, and Public Health Service for a period of two years after retirement who for himself or for others is engaged in the selling of or contracting for the sale of or negotiating for the sale of to any agency of the Department of Defense, the Coast Guard, the Coast and Geodetic Survey, and the Public Health Service any supplies or war materials."

The provisions of the act of June 10, 1896, supra, are permanent and therefore continuing in nature. By the terms of this act naval appropriations are not available for the pay of any officer on the active list who is employed by any person or company furnishing naval supplies or war material to the Government, and any such employment would be unlawful. Nor are naval appropriations available for the pay of any retired officer of the Regular Navy or Regular Marine Corps who for himself or for others is engaged in selling, contracting, or negotiating for the sale of naval supplies or war material to the Navy or to the Department of the Navy. These provisions of law do not apply to officers of the Reserve in receipt of retired pay (Comp. Gen. decision B–101995, Apr. 11, 1951).

The import of the provisions of section 1309 of the act of August 7, 1953, supra, which apparently is permanent legislation, is that neither retired pay nor disability retirement pay may be paid out of the appropriations provided for in that or any other act to any officer on the retired lists of the Regular Navy or Regular Marine Corps, for a period of 2 years after retirement, who for himself or for others is engaged in the selling of or contracting or negotiating for the sale of any supplies or war material to any agency of the Department of Defense, the Coast Guard, the Coast and Geodetic Survey, and the Public Health Service.

The one exception so far noted to the application of the act of June 10, 1896, supra (and it would appear to be equally applicable to section 1309 of the 1953 act, supra), is in the case of persons or firms furnishing plans, specifications, designs, or drawings for the Navy which the Comptroller General of the United States has stated "are commonly understood as being engaged in the furnishing of professional services, and clearly professional services are not 'naval supplies or war material' within the accepted meaning of that term" (Comp. Gen. Dec. B–12238, Nov. 7, 1940). A retired officer, however, should consider this exception in connection with the criminal provisions of section 281, title 18, United States Code, infra, wherein it would appear that this exception is limited to an officer who sells to the Government on behalf of himself only.

V. CRIMINAL PROVISIONS RELATING TO PRIVATE EMPLOYMENT

In addition to the various restrictions upon employment, rate of pay, and appropriations discussed above, there are provisions of certain criminal statutes with which a retired officer should familiarize himself before coming to a decision with respect to any prospective employment. Generally these provisions do not apply to a retired officer who is employed by a firm holding Government contracts but who personally refrains from any negotiations with the Government. Similarly, unless otherwise noted, a self-employed officer who for himself alone contracts with, or sells to, the Government does not violate these statutory penal provisions.

One of the provisions of law to which reference is made in the preceding paragraph is title 18, United States Code, section 281, which reads in pertinent part as follows:

"Whoever, being * * * (an) officer or employee of the United States or any department or agency thereof, directly or indirectly receives, or agrees to receive, any compensation for any services rendered or to be rendered, either by himself or another, in relation to any proceeding, contract, claim, controversy, charge, accusation, arrest, or other matter in which the United States is a party or directly or indirectly interested, before any department, agency, court-martial,

officer, or any civil, military, or naval commission, shall be fined not more than $10,000 or imprisoned not more than two years, or both; and shall be incapable of holding any office of honor, trust, or profit under the United States.

"Retired officers of the armed forces of the United States, while not on active duty, shall not by reason of their status as such be subject to the provisions of this section. Nothing herein shall be construed to allow any retired officer to represent any person in the sale of anything to the Government through the department in whose service he holds a retired status.

"This section shall not apply to any person because of his membership in the National Guard of the District of Columbia nor to any person specially excepted by Act of Congress."

The restrictions of the above-quoted statute are in terms not generally applicable to retired officers of the Armed Forces of the United States by reason of their status as such while not on active duty. Such officers (retired officers not on active duty) may receive or agree to receive compensation for any services rendered in connection with any claim, contract, proceeding or other matter to which the United States is a party or is directly or indirectly interested. It will be observed, however, that the foregoing statute specifically precludes retired officers from representing any person in the sale of anything to the Government through the department in which he holds a retired status. The wording of the statute "to represent any person in the sale of anything" is so comprehensive and so free from qualification as to include the sale of any of the various types of service or the use of service facilities (File JAG : II : CBK : JCK : mmt of 13 Feb. 1951). The statute appears to prohibit a retired officer of the Navy from acting as a representative for anyone in selling to the Department of the Navy.

Also to be considered in this regard in section 283 of title 18, United States Code, providing in pertinent part as follows:

"Whoever, being an officer or employee of the United States or any department or agency thereof, * * * acts as an agent or attorney for prosecuting any claim against the United States, or aids or assists in the prosecution or support of any such claim otherwise than in the proper discharge of his official duties, or receives any gratuity, or any share of or interest in any such claim in consideration of assistance in the prosecution of such claim, shall be fined not more than $10,000 or imprisoned not more than one year, or both.

"Retired officers of the armed forces of the United States, while not on active duty, shall not by reason of their status as such be subject to the provisions of this section. Nothing herein shall be construed to allow any such retired officer within two years next after his retirement to act as agent or attorney for prosecuting or assisting in the prosecution of any claim against the United States involving the department in whose service he holds a retired status, or to allow any such retired officer to act as agent or attorney for prosecuting or assisting in the prosecution of any claim against the United States involving any subject matter with which he was directly connected while he was in an active-duty status.

"This section shall not apply to any person because of his membership in the National Guard of the District of Columbia nor to any person specially excepted by enactment of Congress."

The above-quoted law, insofar as it relates to retired personnel, provides for the imposition of a penalty on any such person, who, within 2 years after his retirement, acts as agent or attorney in prosecuting or assisting in prosecuting a claim against the United States involving the department in whose service he holds a retired status, or who at any time acts as agent or attorney in prosecuting or assisting in prosecuting any claim involving any subject matter with which he was directly connected while in an active-duty status. The emphasis of this statute is upon "prosecuting a claim, or aiding or assisting in the prosecution or support of any such claim," whereas the emphasis of section 281 of title 18, supra, is upon "services rendered." By plain definition, under the terms of the latter statute, a retired officer of the Navy may receive compensation for "services rendered" in connection with a claim against the United States, as well as for services rendered in connection with any of the other matters enumerated in that statute, when the services rendered are not tantamount to "prosecuting a claim against the United States or aiding or assisting in the prosecution or support of such a claim," in which case he would be restricted for a period of 2 years after retirement in any matter which involves the Department of the Navy, and indefinitely in any matter with which he was directly connected while on active duty.

It should be observed that sections 281 and 283, supra, contain a proviso to the effect that they shall not apply to any person when specially excepted by an act of Congress. It appears that section 1 (b) of the act of July 1, 1947 (61 Stat. 238), as amended by section 804 (a) of the Armed Forces Reserve Act of 1952 (66 Stat. 506) (10 U. S. C. 371b) is such a provision by which the Congress has specifically exempted officers of the Reserve components of the Armed Forces from these penal provisions. That section provides as follows:

"No existing law shall be construed to prevent any member of the Reserve components of the Armed Forces from accepting employment in any civil branch of the public service nor from receiving the pay incident to such employment in addition to any pay and allowances to which he may be entitled under the laws relating to the Reserve components of the Armed Forces, nor as prohibiting him from practicing his civilian profession or occupation before or in connection with any department of the Federal Government."

Section 284 of title 18, United States Code, which is similar in effect to the above-quoted section 283, provides as follows:

"Whoever, having been employed in any agency of the United States, including commissioned officers assigned to duty in such agency, within two years after the time when such employment or service has ceased, prosecutes or acts as counsel, attorney, or agent for prosecuting, any claims against the United States involving any subject matter directly connected with which such person was so employed or performed duty, shall be fined not more than $10,000 or imprisoned not more than one year, or both."

Insofar as concerns retired officers, it does not appear that section 284 provides any restriction in addition to those contained in section 283. The phrase "claim against the United States" as used in section 284 has been judicially defined as being limited in scope to "demands against the Government for money or for property" (*U. S.* v. *Bergson*, 119 F. Supp.–D. C. D. C. 1954–459, 465; see also JAG: II: 2: CBK: sms of July 29, 1952). It would appear that a similar construction of that phrase would be applicable to the use thereof in section 283.

Pursuant to the request of the Attorney General the following notice has been promulgated in SecNav Instruction 5800.5 dated October 23, 1953, with respect to the application of section 284:

"In Memorandum No. 40 issued August 27, 1953, and directed to all United States attorneys, the Attorney General stated that:

"'* * * it is the position of the Department that the statute prohibits any former employee of the Federal Government for a period of 2 years after leaving Government service, from representing any nongovernmental interest in any matter whatsoever, "involving any subject matter directly connected with which such person was so employed or performed duty," in which the United States is interested directly or indirectly, whether as a party, as an enforcement agent, or otherwise.

"'The United States attorneys are instructed to vigorously prosecute all violations of section 284 as above construed.'

"Action. Violation of the above-noted statute should be reported to the Office of the Judge Advocate General of the Navy."

Another provision of the criminal code which may affect the interest of retired officers of the Navy is section 434 of title 18, United States Code, reading as follows:

"Whoever, being an officer, agent, or member of, or directly or indirectly interested in the pecuniary profits or contracts of any corporation, joint-stock company, or association, or of any firm or partnership, or other business entity, is employed or acts as an officer or agent of the United States for the transaction of business with such business entity, shall be fined not more than $2,000 or imprisoned not more than two years, or both."

The import of the above-quoted provision of law is that a criminal penalty may be imposed on a person who serves as an officer, agent, or member of, or is directly or indirectly interested in the profits of, a business entity and also acts as an officer or agent of the United States for the transaction of business with such a business entity. In construing this statutory provision in a case involving an Army officer, the views of the Attorney General of the United States have been expressed as follows:

"No man can serve two masters. The statute in question is clearly grounded on this assumption. Its manifest purpose is such that any attempt to reconcile it with the proposed employment runs into difficulties * * *. No matter how high are the motives of the Army officer who advises, he is likely as a realistic matter to be consciously or unconsciously influenced by the fact that his actions may

benefit the corporation of which he is an officer and a stockholder. To a degree his salary as an officer of the corporation would be affected by whether his advice leads the War Department to enter into a procurement contract with his company. To a larger degree his share in the earnings of the corporation as a stockholder would be affected by this advice.

"The advice of the officer would probably also materially influence the nature and extent of the contracts entered into with his company. Conflict between the interests of the United States, the interests of the corporation and the interests of the Army officer as an officer and stockholder of the corporation are more than likely to arise. Such conflicts and results were doubtless intended to be avoided by the statute" (40 Op. Atty. Gen. 168).

The particular laws under which private interests seek to transact business with the Government frequently contain provisions which have the effect of restricting or prohibiting the employment of retired naval officers in connection with such business transactions. An example of such a provision of law is section 412 of the Mutual Defense Assistance Act of 1949 (22 U. S. C. 1584) which provides as follows:

"Whoever offers or gives to anyone who is now or in the past two years has been an employee or officer of the United States, any commission, payment, or gift, in connection with the procurement of equipment, materials, or services under this chapter, and whoever, being or having been an employee or officer of the United States in the past two years, solicits, accepts, or offers to accept any such commission, payment, or gift, shall upon conviction thereof be subject to a fine of not to exceed $10,000 or imprisonment for not to exceed three years, or both."

Since there is no general legislation in this regard a retired naval officer is advised in each instance where his employment may put him in contact with the Government to check carefully the laws relating to the Federal agency with which he contemplates doing business for provisions that would restrict his business relationship with such agencies.

Another criminal statute to which reference is often made in connection with the general subject matter of this article is section 216, title 18, United States Code, which provides, in pertinent part, as follows:

"Whoever, * * * being an officer, employee, or agent of the United States, directly or indirectly takes, receives, or agrees to receive, any money or thing of value, for giving, procuring, or aiding to procure to or for any person, any contract from the United States or from any officer, department, or agency thereof; or

"Whoever, directly or indirectly, offers, gives, or agrees to give any money or thing of value for procuring or aiding to procure, any such contract—

"Shall be fined not more than $10,000 or imprisoned not more than two years, or both; and be disqualified from holding any office of honor, profit, or trust under the United States.

"The President may declare void any such contract or agreement."

Unlike sections 281 and 283, supra, this section does not contain a provision exempting from its application retired officers when not on active duty. However, since this section is found under chapter 11 of the Criminal Code, headed "Bribery and Graft," it would appear reasonable to conclude that in common with the other sections in chapter 11, section 216 applies only to the prevention of corruption of Government officials by bribery, gifts, or other equally persuasive subtleties made in return for help in obtaining such contracts with the Government and that it is not directed against retired officers receiving pay for the procurement of contracts with the Government, if otherwise permitted by law. This view is strengthened when considered in the light of the provisions of said section 281 which grants to retired naval officers the right to deal with all departments of the Government except the department in whose service they hold a retired status. A contrary interpretation of section 216 would have the effect of negating completely the exemption so granted to such personnel by section 281, supra.

VI. CONCLUSION

The foregoing is a résumé of the more common aspects of the law which affect the employment activities of retired naval officers and of retired enlisted persons as noted. It is not feasible, of course, to list every statutory provision, or exception thereto, bearing upon this subject. Also, this study should not be considered as a substitute for the large number of opinions rendered by the courts, or other appropriate agencies of the Government. It should be regarded only as a guide to measure the usual cases of such employment.

Mr. HOLIFIELD. Thank you very much.

Mr. ROBACK. Mr. Chairman, at this time I would request from the Navy representatives a summary of their discussions with respect to terminations of the engine and airframe contracts, indicating who, in policy positions, in the Bureau of Aeronautics and in the Navy Department made any representation as to the timing of the termination and as to the method of the termination.

Mr. HOLIFIELD. Are you addressing that to Admiral Harrison or to Admiral Russell?

Mr. ROBACK. This would be addressed to Admiral Russell because Admiral Harrison is no longer with the Navy Department.

Mr. HOLIFIELD. Thank you, Admiral Harrison. You may be excused from the witness stand. Admiral Russell, will you please take the witness stand. Mr. Roback, will you address your questions now?

Mr. ROBACK. Admiral Russell, will you supply to the subcommittee a summary of the discussions, the conferences relating to the termination of the airframe and engine contracts, the matter under discussion, indicating the dates, the methods, and the amounts involved in these terminations, also indicating who, in policy positions, put forth positions with respect to those matters?

(The summary referred to contains classified security information, and is being retained in the subcommittee files.)

TESTIMONY OF REAR ADM. JAMES S. RUSSELL, CHIEF, BUREAU OF AERONAUTICS, UNITED STATES NAVY; ACCOMPANIED BY REAR ADM. R. E. DIXON, ASSISTANT CHIEF, BUREAU OF AERONAUTICS, PLANS AND PROGRAMS; AND REAR ADM. G. W. BEARDSLEY, ASSISTANT CHIEF, BUREAU OF AERONAUTICS

Admiral RUSSELL. I will supply as far as it is a matter of record within my Bureau. I should like to point out to the chairman, however, that the two investigators who have been working with us have had access to all papers including those which are more or less of a private nature, memoranda from my staff to me personally which normally shouldn't, for obvious reasons, be disclosed generally.

But the staff has had access to all this, and we will certainly go back, re-search the files, and everything which is a matter of record we will bring out.

Mr. HOLIFIELD. I think there will be no trouble in agreeing as to what should be released between your staff and our staff, Admiral Russell.

Admiral RUSSELL. I am sure there will not be, sir.

Mr. HOLIFIELD. There is one thing that has been apparently confused in the press, and that is the cost of the termination of these various contracts, and there have been conflicting amounts cited in the different newspapers. Now if we could arrive at some agreed-upon figure—apparently the figures which we have are not exactly like the figures which you have, and there may be some possibility of reconciling the total amount of those figures.

Admiral RUSSELL. Yes, sir. I would like to point out, if I may, sir, that many of these negotiations are still in progress.

Mr. HOLIFIELD. Yes, sir.

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Admiral RUSSELL. And the figures which my termination officer gave to you were an estimated top figure. These figures should probably, as negotiations go forward, be actually less than some of these figures which have been given.

Mr. HOLIFIELD. What figure do you state now is in your best judgment a figure of total termination costs?

Admiral RUSSELL. For the J–40 engines, sir, I think my figure in my statement is probably about the best all-around figure I could give.

Mr. HOLIFIELD. And what was that figure?

Admiral RUSSELL. That was $105 million, sir.

Mr. HOLIFIELD. That is on the engine, the J–40 engine. Does that include the cost expended in airframes and the cost of termination?

Admiral RUSSELL. No, sir; this is only the engine terminations.

Mr. HOLIFIELD. We would be interested in knowing the cost expended to date in airframe and the potential future cost of expenditure on the airframes that would be with the J–40 engine and the possible penalty involved on the Government for the termination of those airframes, if you can give that to us.

This does not mean what the cost would have been if you had made 500 frames, for instance. It means what is the cost of the 107 frames, if that be the number which have been made and delivered, and what is the cost of termination of the contract, termination inventory, planes in the process of assembly which will not be completed, and all that sort of thing?

Admiral RUSSELL. Let me make it clear here and now, if I may, sir, my $105 million is the total cost of the J–40 engine program. It is not the cost for terminations.

The cost for terminations specifically as we estimate it now within complete negotiations is to Westinghouse $10 million, to Ford $15 million, with a total termination cost estimated, sir, of $25 million.

Now the 105 includes the R. and D. cost to Westinghouse for his engine development, and this comes at about $27 million, sir. The Westinghouse production, for which we got hardware, cost us $41½ million, sir.

Now the spare parts which come out to back up these engines in service cost us about $13½ million. These elements plus the termination of $25 million goes into my figure of 105 in my statement, sir.

Mr. HOLIFIELD. I see. Well, now this gets us pretty close. There is one other factor.

Admiral RUSSELL. Please remember, sir, that we got engines, we got test time, we had development time on aircraft in exchange for this $105 million of which I speak.

Mr. HOLIFIELD. Now this does not include the J–46 engine cost, does it?

Admiral RUSSELL. No, sir; that is an entirely separate program for a different airframe, sir.

Mr. HOLIFIELD. As I understand it, the J–46 engine was to be installed in the F7U, the A2U, the F4D, and the F10F. Am I wrong on that? If so, correct me, please.

Admiral RUSSELL. The J–40 engines were to be installed in the F3H, in the F4D, the A3D, and the F10F, sir.

Mr. BALWAN. What other frames were designed to be built around the J–40 besides the F3H? Is that what you just gave?

Admiral RUSSELL. This is just what I gave, sir, beginning with the F3H. I will say it again, sir, the airframes which were designed around the J40 engine or which the J40 was to be the powerplant were the F3H, which has been the subject of this investigation, sir, and additionally; there are two Douglas airplanes, the F4D and the A3D.

Mr. HOLIFIELD. And the F10F.

Admiral RUSSELL. And the Grumman F10F. This is in my statement, sir.

Mr. HOLIFIELD. Does your $105 million figure include the costs of termination of those?

Admiral RUSSELL. It has nothing to do with the airframe, Mr. Chairman. It has only to do with the engines for those airplanes.

Mr. HOLIFIELD. But were there additional costs for the development of those airframes which also had to be terminated or were those frames used with a different engine?

Admiral RUSSELL. These were experimental models. They were flown first with the J40, and we changed in the production models to a different engine, with one exception, the experimental Grumman F10F fighter was terminated completely. It was an unpromising model and was terminated completely.

Mr. HOLIFIELD. And was the cost of that model included in your $105 million?

Admiral RUSSELL. No, sir; it was not.

Mr. HOLIFIELD. And how much was that?

Admiral RUSSELL. The F10F experimental program, sir, is an expense entirely apart I believe from anything that you would be interested in here. It is the development of a fighter aircraft of a different model.

Mr. HOLIFIELD. But it was to use the J40 engine?

Admiral RUSSELL. Oh, yes, sir; it was.

Mr. HOLIFIELD. Was it terminated because of the failure of the J40 engine, or was it terminated for other reasons?

Admiral RUSSELL. It was terminated for other reasons. That is why I thought that you wouldn't care to——

Mr. HOLIFIELD. That is why I wanted it placed on the record. If it isn't a fair charge to this program, then I think we ought to say that it isn't and say that the reason was not the engine but that it was other reasons of different kinds.

Admiral RUSSELL. That's correct, sir.

The F10F was abandoned because of other reasons than the engine. It was an unpromising fighter, in comparison with others available.

Mr. HOLIFIELD. Now, can I ask you if the J–46 engine program, which, as I understand it, was designed for the F7U frame; is that right?

Admiral RUSSELL. The F7U airframe took the J46 engine, which is the other Westinghouse engine.

Mr. HOLIFIELD. Now, were there any other airframes for the J46?

Admiral RUSSELL. The XF2Y, a seaplane fighter, at Consolidated Vultee, and the A2U which was an attack version of the F7U.

Mr. HOLIFIELD. Those three frames were destined to use the J46 engine?

Admiral RUSSELL. That's correct, sir.

Mr. HOLIFIELD. Are any of those three, or all of them, in production or in use at this time?

Admiral RUSSELL. The F7U only of the three is in fleet use today, sir.

Mr. HOLIFIELD. The XF2Y and the A2U has been canceled?

Admiral RUSSELL. That's correct, sir.

Mr. HOLIFIELD. Were they ever brought to the point of production?

Admiral RUSSELL. There were some contracts for production which were terminated, but this termination was for the reason that the evaluation of the experimental model was not promising enough to continue.

Mr. BALWAN. On which?

Admiral RUSSELL. The ATU and the F2Y, that is, the attack version; of the F7U first, and, secondly, the seaplane fighter; both these models were terminated because of lack of promise. They were kept in experimental status in the case of the F2Y.

Mr. HOLIFIELD. Was the F7U produced, and is it now in use?

Admiral RUSSELL. I am sorry?

Mr. HOLIFIELD. Was the F7U produced with the J46 engine, and is it now in use, at this time?

Admiral RUSSELL. It is in fleet use now, sir.

Mr. HOLIFIELD. It is?

Admiral RUSSELL. Yes, sir.

Mr. HOLIFIELD. In quantities?

Admiral RUSSELL. Yes, sir.

Mr. HOLIFIELD. So, out of that family of frames, and with engine, you do have a usable product?

Admiral RUSSELL. We do, sir.

Mr. HOLIFIELD. Were there any further questions on that point which you wanted to ask, Mr. Balwan?

Mr. BALWAN. Was the F7U powered with the J46; was it delayed at all by virtue of slowness with which the J46 engine was coming to you?

Admiral RUSSELL. It was, indeed, and we substituted another engine, the J35, in order to get early flight tests in that airframe.

Mr. HOLIFIELD. Then the J46 engine is not being used now in the frame, but another engine is?

Admiral RUSSELL. It is being used now, sir. It was slow in coming, and in order to get the early flight testing, we made a substitution of the J35, very similar to the problem we have here of the F3H–1 versus the F3H–2, where we use another engine, you see.

Mr. BALWAN. The F4D, what engine do you use now?

Admiral RUSSELL. The Pratt & Whitney J57.

Mr. BALWAN. Is it because that frame is more suited to that engine, or is it related in any way with the Westinghouse deliveries?

Admiral RUSSELL. It is related to both. The Westinghouse engine we had so much trouble keeping in service was one reason. The second reason was that the J57 could give us better engine performance in terms of thrust.

Mr. BALWAN. Did you have any difficulties in modifying the F4D frame to take the Pratt & Whitney engine, as you are experiencing in the case of the F3H?

Admiral RUSSELL. I would like to ask Admiral Dixon whether we had trouble getting the F4D equipped with the J57 engine.

Admiral DIXON. There was some difficulty, but compared to the F3H the difficulties were minor.

Mr. BALWAN. Were there any models or frames of the F4D which are unfitted or not back-fitted with any engine?

Admiral DIXON. No, sir. We put the J57 engine in the first production F4D by slowing up the production line. Now, the two XF4D's still have the J40 engine installed. We have continued to fly them. We have flown them for some 359 hours, I believe is the figure. We did not back-fit the first two experimental F4D's, but we installed the J57 in the production line of all the F4D's.

Mr. HOLIFIELD. Could I ask you a question at this point on that, Admiral Dixon?

As we understand it, there are approximately 27 frames on the ramp at McDonnell. Maybe that figure varies a little bit; I am not sure.

Is it contemplated that the J71 engine will be installed in those frames, or is it contemplated that one of the J40 models will be installed in those planes?

Admiral DIXON. Mr. Chairman, as the Chief of the Bureau has previously testified, at the moment we have no firm plans to install the J71 engine in those airframes.

Mr. HOLIFIELD. Now, may I ask you this: You did install at least four J71 engines in those frames?

Admiral DIXON. In four of the F3H–1 airframes, yes, sir.

Mr. HOLIFIELD. What was the approximate cost per plane for that installation?

Admiral DIXON. I am sorry, sir, I cannot answer that question.

Mr. HOLIFIELD. You mean, you do not know?

Admiral DIXON. I can get the information, but I do not know at the present time.

Mr. HOLIFIELD. Does there have to be major adaptation of the frame in order to put the J71 engine in that frame?

Admiral DIXON. Comparatively speaking, yes, sir; much more difficulty than we had in the F4D and the A3D.

Mr. HOLIFIELD. Without specifying the cost of the adaptation, do you think at this time that it would be economic to fit those frames with the J71?

Admiral DIXON. Mr. Chairman, if I can quote from memory, subject to error, as I remember the figures that we have calculated, to convert 26 airplanes to the—the second 26 airplanes of the contract, the F3H–1's to F3H–2's, would require some $15 million.

Mr. HOLIFIELD. How much?

Admiral DIXON. $15 million. To convert all existing F3H–1's to F3H–2's, I believe the figure is $28 million.

Mr. BALWAN. That would take the first part?

Admiral DIXON. It would take the second part of the 60 for the first section. The second figure, $28 million, would take all 54 remaining aircraft.

Mr. HOLIFIELD. Now, can you answer the question in round figures? Let me phrase it a different way.

If you did put this J71 engine in those planes, would you have at the conclusion of that expenditure a first-line fighting plane, in view of recent developments?

Admiral DIXON. Mr. Chairman, we would have an airplane inferior to the F3H–2, which is now beginning to come off the production line in quantity, due to the fact that we have later modified the wing of the F3H–2 to increase its performance.

Mr. HOLIFIELD. So, it is the judgment of the Navy, then, at this time, as far as you know, that it would be better to put the $28 million into the new model, the F3H–2, than it would be to put it into a model which would, by the evolution of technology, be considered inferior to our latest craft?

Admiral DIXON. That's correct.

I would say also, Mr. Chairman, that if an emergency came up, we would very likely take the former step.

Mr. HOLIFIELD. In other words, if there was a need for immediate fitting up, why, you could step in there with available engines and fit up a plane which might operate in certain theaters?

Admiral DIXON. That's correct.

Mr. HOLIFIELD. But would not be fair competition in the top-class areas?

Admiral DIXON. I would say that the converted aircraft would be a very good aircraft, Mr. Chairman, but it would not be equivalent to the planes that we are getting off the production line at the present time. And, at the moment, we do not feel the expense is warranted.

Mr. HOLIFIELD. Mr. Lipscomb?

Mr. LIPSCOMB. Well, if an emergency did arise, couldn't you fit those plans with J40, without any alteration expense, in an aircraft?

Admiral DIXON. They are fitted with J40, Mr. Lipscomb, J40–22's is the engine currently going in those airframes.

Mr. LIPSCOMB. How many are you fitting with the J40–22?

Admiral DIXON. We have engines for all F3H airframes. Whether all of them are installed at the present time or not, I am not able to say, sir.

Mr. LIPSCOMB. As I understood the testimony yesterday, the last 40 that are being delivered to the Navy are in a canceled condition, and have not been tried on the racks at Westinghouse.

Admiral DIXON. That's right. But remember, sir, that we have, I think, 107 engines coming——

Admiral RUSSELL. That's correct.

Admiral DIXON (continuing). And only 54 fuselages.

Admiral RUSSELL. Fifty-one fuselages.

Mr. LIPSCOMB. I understood, according to Westinghouse testimony, deliveries will be 107, but only 40 as canceled——

Admiral RUSSELL. That's correct. But these have been through the green run. They can be run through the second, they can be broken down, looked at, put back together and run again, in which case they would be first-line engines.

Mr. LIPSCOMB. Going back to my original question, if an emergency did arise, you would have airplanes with engines that could be flown for the purpose, without refitting them with the J71?

Admiral RUSSELL. That's correct, sir.

Mr. LIPSCOMB. And going into $28 million worth of expense?

Admiral RUSSELL. That's correct, sir. There would be a lot of difficulty in making those engines, because of their fewness in number. I mean, if we were to deploy these airplanes, we would have to back them up with spares, and the mechanics would have to be thoroughly trained in them, and so forth, so this would be a last resort that we would use these airplanes.

Mr. LIPSCOMB. Then, are you going to use those airplanes, the frames and engines which you are accepting delivery on, or are they sitting on the ramps for mechanical training?

Admiral RUSSELL. We have use for every one of the airframes and the engines.

Mr. LIPSCOMB. You are not going to save those airframes and engines for an emergency?

Admiral RUSSELL. Not the first 21, sir—the first 25, actually. Now, may I explain that of the first 30 aircraft which have come off the production line, 5 have crashed? We have 25 left; 21 of these are at McDonnell and 4 were at our installations here on the east coast.

The first 21 will be delivered to Memphis, where our technical training goes forward. They will be used in the training of men in the art of maintenance of jet engines and modern aircraft. This is our use for them.

We have other uses, namely, in studying gunfire effects, battle-damage effects. We have a use for them in vibration studies of a modern high-performance jet airframe, vibration studies, strength against vibration. So there are a great number of uses for both the airframes and the engines, which are nonflying uses.

Mr. LIPSCOMB. You may have use for 25 airframes and 25 engines; is that right?

Admiral RUSSELL. We will have an immediate use for those; yes, sir.

Mr. LIPSCOMB. Then, that will leave you with 36 airframes?

Admiral RUSSELL. Twenty-six, sir. Of the second 30, you see, 4 have already been rigged with the J71 engine.

Mr. LIPSCOMB. You have 61 planes that you are working with; is that right?

Admiral RUSSELL. We had 60 originally, sir; 5 have crashed, 4 have been converted. That is 51 left, sir.

Mr. LIPSCOMB. There will be how many without engines?

Admiral RUSSELL. They all have engines available to them. There are 107 engines made.

Mr. LIPSCOMB. But you are not going to put the engines in the frames?

Admiral RUSSELL. This will depend on the purpose for which we adapt them, sir. There is an engine for every airframe, plus. They are almost twice, you see, 107 engines, 51 airframes.

Mr. LIPSCOMB. I got the impression from the questioning of the chairman that you told him that these would be available, in case of emergency that you fit with the J71 by spending $28 million.

Admiral RUSSELL. The 26 aircraft of the second 30, if we backfit and make them flyable and usable articles with the J71 engines, it is estimated will cost us fifteen-million-odd-dollars for the 26 airplanes converted.

Mr. LIPSCOMB. Admiral, could we have the cost of the 60 aircraft, airframes and engines, total cost that is involved?

Admiral RUSSELL. This is very difficult to separate out from the total contract for 280, but as the Secretary of the Navy in his statement to Senator Johnson said, we have estimated that the cost of the airframes, the engines, the spares for both airframe and engines and all the gear, comes to about $154 million.

Mr. BALWAN. Can you estimate the cost for one airframe of this series?

Admiral RUSSELL. Divide that, sir, by 60.

Mr. BALWAN. Your testimony in your statement was $1.8 millions for aircraft.

Admiral RUSSELL. This is a rough, round estimate; yes, sir.

Mr. LIPSCOMB. Mr. Balwan, didn't you ask for the engine or airframe separately?

Mr. BALWAN. I was referring to Admiral Russell's prepared statement, in which he gave an average of roughly 1.8 millions per aircraft, which I think he got by dividing the 280 into the total cost.

Admiral RUSSELL. 510 millions; that's correct, sir.

Mr. BALWAN. That is just the airframe?

Admiral RUSSELL. No, sir; that is the airframe, the engine, and all the life of type spares. Please don't misunderstand me. Let's get this straight.

The $510 million is the cost of 280 aircraft with engines, with machineguns, with everything that goes into that plane, plus all the spares we need to keep those aircraft in service.

Mr. HOLIFIELD. But you didn't spend that?

Admiral RUSSELL. We are in process of spending that, sir, for 280 aircraft. We have had delivered up to about, today—about 83, I would say, of these.

Mr. ROBACK. But the average cost for the first 60 is considerably more than 1.8 million, if I read the figures rightly.

Admiral RUSSELL. Well, take 154 million, and divide by 60.

Mr. HOLIFIELD. 2.5, roughly.

Admiral RUSSELL. That's correct, sir.

Mr. ROBACK. 2.5 is in excess of 1.8 million overall average cost.

Admiral RUSSELL. You see, as you produce more and more airframes the unit price comes down obviously. You learn, and the unit price comes down. The first one is pretty expensive.

Mr. ROBACK. Mr. Chairman, I want to inquire of Admiral Russell whether he has given us a figure as to the total termination cost for airframes, other than the F3H, which were cut back as the result of the failure to deliver according to schedule or on time the J40 engines.

Admiral RUSSELL. I would like to point out that the terminations in the case of the F3H–1 are directly attributable to the engine. In the other cases it is a mixture——

Mr. ROBACK. We appreciate that.

Admiral RUSSELL (continuing). And it is very difficult to say what piece of this mixture is due to the engine and what is due to——

Mr. ROBACK. Can you give us an estimated figure, because, admittedly, a number of these cutbacks were made because you didn't have the J40 engines, so some termination charges have to be assigned to that particuluar venture.

Admiral RUSSELL. That is quite true, sir, but how you figure out what is because of the engine and what piece is attributable to the fact there was a better engine available, I don't know.

Mr. ROBACK. But you do have specific cutbacks which were made at a time when the cutbacks were made, because the engine wasn't available. You may have subsequently accepted some deliveries for other engines, but you did make some cutbacks based upon the unavailability?

Admiral RUSSELL. This was one factor in a great number which went into the engineering judgment: "What do we do with this particular type?"

Mr. ROBACK. Can you give us an estimate, not necessarily at the moment, based upon a range of cost between a maximum and a minimum figure?

Admiral RUSSELL. I cannot, sir; I am sorry. Maybe our procurement expert might have some idea.

Admiral BEARDSLEY. As I recollect, there was no termination of F4D aircraft or A3D aircraft for J40 reasons. The failure of the J40–10 or –12 to materialize caused us to change over to the Pratt-Whitney J57.

We lost 6 months to a year in making that conversion, and we had to pay the additional engineering and tooling costs to the contractor, in this case Douglas, to change his tools, but we did not terminate airframes in either of those cases. So there can be no termination charges to those two frames for J40 failure.

And one other thing, Mr. Chairman. I would suggest that I am perfectly willing to sit down with representatives of the committee here, to sit down and analyze these figures. One of our problems here is, we budget different ways. We have our research and development budgets and we have our production budgets, and under our production budgets we have our cost spread sheets, which lay out program costs of the F3H for each fiscal year's program.

Now, this figure of $510 million is the latest overall program cost for the F3H as we now have it on order, the total. It has nothing to do with the research and development of the airframe; it has nothing to do with the research and development of the engine.

That is the reason we get confused on these things, we get confused ourselves sometimes, but the 510 million is the total program costs that we now foresee to keep these 280 aircraft, and we admit that the first 60 will not be in the current fleet inventories, but to keep the remaining planes in service, to overhaul the engines for their whole service life.

Some of that money will not be spent for 4 or 5 years. It is to buy the engine parts, to overhaul an engine 5 years from now when it is required. That is the purpose of that.

Now, the research and development costs on the J–40 engine should really be prorated to the 3 or 4 aircraft we had hoped to put that in. We probably shouldn't charge that all off to the F3H. That is one of our predicaments, to get these figures in perspective.

We had hoped to put that into the A3D, the F4D, and these other planes. You really should prorate that failure into other areas, even though those planes were not canceled because of the engine.

Now, the production costs, largely, should probably be borne against the F3H, because, in the final analysis, we had canceled out our production in the other areas, and the engines we did produce, the 22, were essentially for the F3H program. I feel convinced that we can reconcile any difference, but it is difficult to present these figures.

Mr. HOLIFIELD. The Chair is going to avail himself of your offer to cooperate with the staff, and at this time I wish to address this remark to Secretary Fogler and to Admiral Russell and yourself, as the top authorities present, and say that in the study of this testimony and these figures, we are going to consult with you people. We hope to

have the fullest and freest cooperation in the future that we have had in the past——

Admiral RUSSELL. You will, sir.

Mr. HOLIFIELD (continuing). On this matter, with the idea in mind of putting out a committee report which will not be subject to challenge as far as all of the technical figures are concerned, and the statements which are based on some of these complicated and technical procedures, not with the idea of collaborating on any kind of a way which would not be frank and open, but with the idea in mind of being sure that our report is not in technical error, or on any of these complicated technical points, and I believe this will be to the benefit of the taxpayer and to the general public and the Navy and the manufacturers, because we want a very careful report to be made on this matter in order to clear up this confusion and these errors which have been prevalent in the press.

I believe you have one or two more questions, Mr. Balwan?

Mr. BALWAN. Mr. Chairman, yesterday there was testimony to the effect that a very small portion of contracts are terminated by the default clause, and I should like to request, with your permission, that material be supplied for the record on all contracts over $300,000 which have been terminated in the Bureau of Aeronautics, Department of the Navy, for the past 3 years, giving the contractor and the method of termination on the contracts over $300,000.

Mr. HOLIFIELD. Admiral Russell, will it be possible for you to furnish that, without undue difficulty?

Admiral RUSSELL. It will, sir.

Mr. HOLIFIELD. It would not involve a tremendous bookkeeping search, would it?

Admiral RUSSELL. Nothing is done without some labor, sir, but we can certainly do this, and I think it is pertinent.

May I ask the period of years you specified?

Mr. BALWAN. Fiscal years 1953, 1954, 1955, and up to, say, the 4 months of fiscal year 1956.

Admiral RUSSELL. That will be done, sir.

(The material referred to is as follows:)

DEPARTMENT OF THE NAVY,
BUREAU OF AERONAUTICS,
Washington, D. C., October 31, 1955.

MEMORANDUM

From: Assistant Chief for Procurement.
To: Assistant Chief for Plans and Programs.
Subject: Information requested by Holifield subcommittee.
Reference: (*a*) Aer–20/1 Memo on subject dated October 27, 1955.
Enclosure: (1) Detailed breakdown of terminated contracts, calendar years 1953, 1954, and first 4 months of 1955 (7 pages) in quadruplicate.

1. Enclosure (1) is submitted in accordance with request contained in paragraph 3 (*b*) of reference (*a*).

2. A summary of enclosure (1) is herein set forth:

Number of terminations	Type of contract	Contract value	Settled at no cost	Settlement or estimated claim
142	Fixed price and letters of intent	$1,706,450,976	[1] $315,413,044	$196,311,314
34	Cost plus fixed fee	97,620,123		
12	Cost contracts	64,210,026		

[1] 44 cases.

3. All of the terminations actions listed in the enclosure were for convenience of the Government.

G. F. BEARDSLEY,
Rear Admiral, USN, Assistant Chief for Procurement.

Contract terminations

CALENDAR YEAR 1953

NOas contract No.	Termination No.	Name of contractor	Date of termination	Contract value of items terminated	Terminations settled (amount of settlement)	Terminations not settled (estimate of contractor's claim)
51-478	TN-1	Hoffman Radio Corp	Mar. 16, 1953	$2,084,000	(1)	
51-966	TN-1	Ford Motor Co	Feb. 26, 1953	61,700,000		[2] $6,274,319
51-989	TN-1	Vendo Co	Jan. 3, 1953	3,303,587		590,000
51-1201	TN-1	McDonnell Aircraft	Mar. 6, 1953	3,700,183	(1)	
51-1259	TN-1	Philco Corp	Jan. 3, 1953	5,096,000		[2] 900,000
51-1262	TN-1	Skyline Corp	Jan. 2, 1953	813,443		385,000
52-218	TN-1	Robertshaw-Fulton Controls Co.	Feb. 27, 1953	571,842		[2] 320,000
52-247	TN-2	Douglas Aircraft	Feb. 14, 1953	2,739,030		[2] 102,594
52-397	TN-1	Lavoie Laboratories	Jan. 8, 1953	2,835,749	(1)	
52-461	TN-1	Emerson Electric Manufacturing Co.	Jan. 3, 1953	2,184,000		285,000
52-947	TN-1	McDonnell Aircraft Co	Mar. 6, 1953	830,000	(1)	
52-987	TN-2	Piasecki Helicopter Co	do	4,350,000		[2] 372,000
53-392	TN-1	Glenn L. Martin	Mar. 13, 1953	894,600	(1)	
53-605	TN-1	United Aircraft (Sikorsky)	Jan. 29, 1953	17,010,000	(1)	
10092	TN-1	North American Aviation	June 8, 1953	20,180,992	$17,131,124	
10385	TN-6	Westinghouse Electric Corp	May 26, 1953	1,117,512		341,000
51-140	TN-2	Grumman Aircraft	June 12, 1953	26,086,982		12,100,000
51-639	TN-2	do	Apr. 1, 1953	62,720,000		3,500,000
51-648	TN-1	Piasecki Helicopter Co	June 15, 1953	4,034,929		1,435,000
51-966	TN-2	Ford Motor Co	Apr. 6, 1953	65,172,000		[2] 6,797,177
51-1218	TN-1	General Electric Co	May 28, 1953	683,171	(1)	
51-1271	TN-1	Engineering & Research Corp	May 1, 1953	315,482	(1)	
51-506	TN-1	Hazeltine Electronics Co	Feb. 11, 1953	847,800		75,000
52-486	TN-1	do	do	2,141,300		50,000
51-1039	TN-2	United Aircraft (Sikorsky)	Apr. 17, 1953	1,603,806	(1)	
52-048	TN-3	Westinghouse Electric Corp	Apr. 7, 1953	372,000	(1)	
52-218	TN-2	Robertshaw-Fulton Controls Co.	June 24, 1953	1,780,495		[2] 635,000
52-428	TN-2	Chrysler Corp	June 17, 1953	3,383,500		1,229,000
52-467	TN-1	Texas Instruments	Apr. 18, 1953	354,340	(1)	
52-549	TN-1	Magnavox Co	June 30, 1953	379,417		[2] 100,000
52-707	TN-1	Philco Corp	May 2, 1953	755,040	(1)	
52-972	TN-1	Temco Aircraft Corp	June 12, 1953	65,000,000		8,972,000
52-986	TN-2	Bell Aircraft	June 17, 1953	800,000	(1)	
52-334	TN-4	UAC, Hamilton Standard Division.	do	7,846,876	491,818	
52-987	TN-3	Piasecki Helicopter	June 15, 1953	2,300,000		(3)
52-1101	TN-1	Westinghouse Electric Corp	May 22, 1953	1,022,400		(3)
53-200	TN-1	Temco Aircraft Corp	June 12, 1953	40,590,000	(1)	
53-201	TN-1	Grumman Aircraft	Apr. 1, 1953	28,003,500	(1)	
53-428	TN-1	Garrett Corp. (Airesearch Manufacturing Co.).	June 22, 1953	5,630,826	(1)	
10825	TN-2	Westinghouse Electric Corp	Aug. 24, 1953	2,034,000	(1)	
12222	TN-1	General Motors, Allison Division.	Sept. 17, 1953	340,833	(4)	
51-100	TN-10	UAC, Pratt & Whitney	July 2, 1953	387,715		17,300
51-100	TN-11	do	July 24, 1953	584,680		37,000
51-138	TN-1	Douglas Aircraft	Sept. 22, 1953	39,446,519		20,000,000
51-631	TN-4	do	do	48,207,702		8,000,000
51-1201	TN-2	McDonnell Aircraft	Sept. 9, 1953	2,540,000		2,384,000
52-048	TN-4	Westinghouse Electric Corp	Sept. 3, 1953	117,373,354		5,500,000
52-048	TN-6	do	Sept. 30, 1953	61,149,918		
52-263	TN-3	Garrett Corp. (Airesearch Manufacturing Co.).	Sept. 24, 1953	320,446		160,000
52-334	TN-6	UAC, Hamilton Standard Division.	Aug. 18, 1953	4,931,429		70,000
52-632	TN-1	General Electric Co	Aug. 19, 1953	1,555,848		85,000
52-658	TN-2	do	do	371,376		85,000
52-737	TN-1	National Pneumatic (Holtzer-Cabot).	July 17, 1953	573,872	(1)	
52-924	TN-2	UAC, Pratt & Whitney	Sept. 8, 1953	15,133,740		100,000
52-937	TN-1	Sylvania Electric Products Co	July 27, 1953	1,902,086		(3)
52-951	TN-1	Magnavox Co	July 14, 1953	397,675		18,512
52-544	TN-1	General Electric Co	July 13, 1953	791,546		125,000
52-985	TN-1	Goodyear Aircraft Corp	July 24, 1953	2,356,000	(1)	
52-986	TN-3	Bell Aircraft	Aug. 13, 1953	12,040,610	(1)	

Footnotes at end of table.

Contract terminations—Continued

N Oas contract No.	Termination No.	Name of contractor	Date of termination	Contract value of items terminated	Terminations settled (amount of settlement)	Terminations not settled (estimate of contractor's claim)
52-1028	TN-1	UAC, Pratt & Whitney	July 27, 1953	$6,376,177	(1)	
52-1028	TN-2	do	Aug. 14, 1953	16,786,128	(1)	
52-1171	TN-2	Westinghouse Electric Corp	Sept. 1, 1953	12,677,433		$12,600,000
53-372	TN-2	Garrett Corp. (AiResearch Manufacturing Co.).	July 13, 1953	1,274,470	(1)	
53-372	TN-3	do	Sept. 29, 1953	825,134	(1)	
53-395	TN-2	UAC, Hamilton Standard	Sept. 10, 1953	780,793		26,000
53-395	TN-1	do	Aug. 18, 1953	6,462,948		45,000
53-428	TN-2	Garrett Corp. (AiResearch Manfacturing Co.).	Aug. 24, 1953	1,214,276	(1)	
53-428	TN-3	do	Sept. 24, 1953	1,034,047	(1)	
53-556	TN-1	Westinghouse Electric Corp	July 13, 1953	1,400,000	(1)	
53-757	TN-1	Engineering & Research Corp	Sept. 8, 1953	330,769	(1)	
51-433	TN-1	Dalmo Victor Co	Dec. 17, 1953	530,400		[2] 150,000
51-506	TN-3	Hazeltine Electronics Corp	Oct. 29, 1953	3,175,120		[2] 725,000
51-657	TN-1	Goodyear Aircraft Corp	Nov. 18, 1953	15,240,000		1,071,907
51-808	TN-1	Philco Corp	Oct. 22, 1953	620,000	(1)	
51-1122	TN-1	Texas Instruments	Nov. 18, 1953	1,450,120		[2] 300,000
51-1122	TN-2	do	Dec. 21, 1953	950,207		[2] 200,000
51-1207	TN-1	Raytheon Manufacturing Co	Nov. 23, 1953	1,851,434		200,000
52-263	TN-4	Garrett Corp. (AiResearch Manufacturing Co.).	Oct. 5, 1953	574,189		108,000
52-263	TN-5	do	Oct. 16, 1953	1,442,007		360,000
52-289	TN-3	do	Oct. 1, 1953	1,292,261		316,000
52-289	TN-4	do	Oct. 21, 1953	4,329,166		1,200,000
52-393	TN-1	UAC, Hamilton Standard	Dec. 9, 1953	416,111		167,000
52-549	TN-2	Magnavox Co	Dec. 10, 1953	2,363,140		[2] 800,000
52-752	TN-1	Dalmo Victor Co	Dec. 17, 1953	1,529,974	458,900	
52-835	TN-1	Consolidated Vultee Aircraft	Nov. 3, 1953	51,000,000		3,000,000
52-986	TN-4	Bell Aircraft Corp	Nov. 13, 1953	11,250,000	(1)	
52-1028	TN-3	UAC, Pratt & Whitney	Oct. 30, 1953	28,328,268	(1)	
53-054	TN-1	Doelcam Corp	Dec. 28, 1953	356,003		75,000
53-395	TN-4	UAC, Hamilton Standard	Oct. 28, 1953	921,467	(1)	
53-395	TN-5	do	do	651,270	(1)	
53-468	TN-1	Magnavox Co	Dec. 23, 1953	426,892		100,000
53-744	TN-1	Tycoon Tackle, Inc	Dec. 17, 1953	685,364		225,000
53-886	TN-1	UAC, Chance Vought	Nov 25, 1953	894,773		488,000
53-887	TN-1	General Electric Co	Dec. 9, 1953	7,128,049		[3] 11,800
53-1075	TN-1	UAC, Chance Vought	Oct. 21, 1953	1,287,921	(1)	

CALENDAR YEAR 1954

10825	TN-3	Westinghouse Electric Corp	Jan. 26, 1954	$33,787,000		(3)
10825	TN-4	do	do	18,000,000		(3)
51-506	TN-4	Hazeltine Electronics Corp	Jan. 21, 1954	664,560		$200,000
52-389	TN-1	Westinghouse Electric Corp	Mar. 4, 1954	594,000	(1)	
52-428	TN-4	Chrysler Corp	Mar. 5, 1954	7,480,000		5,031,000
52-688	TN-1	Texas Instruments	Mar. 2, 1954	3,901,000		(3)
52-707	TN-3	Philco Corp	do	1,409,000		65,000
52-835	TN-2	Consolidated Vultee Aircraft	Mar. 31, 1954	6,336,000		500,000
52-1028	TN-4	UAC, Pratt & Whitney	Feb. 26, 1954	78,589,151	(1)	
52-1101	TN-2	Westinghouse Electric Corp	Feb. 17, 1954	101,225,045		10,000,000
53-017	TN-1	Radio Corporation of America	do	54,310,600		9,300,000
53-203	TN-1	Chance Vought Aircraft	Jan. 11, 1954	36,604,800		175,000
53-359	TN-1	Philco Corp	Mar. 30, 1954	477,000		105,000
53-395	TN-6	United Aircraft, Hamilton Standard.	Jan. 13, 1954	628,000	(1)	
53-550	TN-1	Strong Electric Corp	Feb. 15, 1954	632,000	(1)	
53-644	TN-1	Philco Corp	Jan. 29, 1954	1,608,000		75,000
53-940	TN-1	GMC, Allison Division	Mar. 18, 1954	1,975,000		75,000
53-1010	TN-1	Emerson Radio & Phonograph	Feb. 15, 1954	431,000		100,000
54-203	TN-1	Gray Manufacturing Co	Jan. 18, 1954	3,014,000		26,000
54-204	TN-1	Loral Electronics Corp	do	2,009,000		267,000
52-979	TN-3	Douglas Aircraft Corp	Apr. 30, 1954	12,461,000		26,400
54-175	TN-1	Daco Machine & Tool Co	Apr. 20, 1954	349,000		57,000
54-193	TN-1	Bendix Aviation Corp	Apr. 5, 1954	726,000		233,991
52-339	TN-1	Sperry Farragut Corp	July 15, 1954	558,250	(1)	
52-947	TN-2	McDonnell Aircraft Corp	July 27, 1954	1,294,356	(1)	
52-920	TN-1	Collins Radio	July 29, 1954	831,190	(1)	
52-986	TN-5	Bell Aircraft Corp	Aug. 23, 1954	40,786,203		360,000
52-1028	TN-5	Pratt & Whitney	Sept. 28, 1954	10,690,047	(1)	
10825	TN-6	Westinghouse Electric Corp	Oct. 13, 1954	22,319,200		10,000,000
10825	TN-7	do	Nov. 17, 1954	72,279,316		
51-646	TN-1	Bell Aircraft Corp	Oct. 1, 1954	43,909,921		17,000,000
52-986	TN-6	do	do	17,009,786		150,000

Footnotes at end of table.

Contract terminations—Continued

NOas contract No.	Termination No.	Name of contractor	Date of termination	Contract value of items terminated	Terminations settled (amount of settlement)	Terminations not settled (estimate of contractor's claim)
52-1028	TN-6	Pratt & Whitney	Nov. 5, 1954	$1,274,551		$372
52-1052	TN-1	Zenith Radio Corp	Nov. 23, 1954	458,527		200,000
53-204	TN-2	McDonnell Aircraft Corp	Nov. 17, 1954	125,325,000		4,000,000
53-395	TN-12	UAC, Hamilton Standard	Nov. 10, 1954	2,268,840		150,000
53-603	TN-1	Chance Vought	Nov. 17, 1954	28,675,200		15,000,000
54-319	TN-1	do	do	27,600,000		
CALENDAR YEAR 1955 (4 MONTHS)						
52-658	TN-4	General Electric Corp	Jan. 4, 1955	$9,422,043		[2] $199,000
52-1028	TN-7	Pratt & Whitney	do	2,339,102	[1]	
52-1028	TN-8	do	Mar. 9, 1955	2,200,496		672,000
52-1028	TN-9	do	Mar. 31, 1955	10,864,869		[3]
53-204	TN-3	McDonnell Aircraft Corp	Jan. 20, 1955	452,000		380,000
53-887	TN-2	General Electric Corp	Jan. 13, 1955	1,586,999		2,000
54-813	TN-1	Raytheon Manufacturing Co	Mar. 15, 1955	1,389,626		33,000
54-878	TN-1	UAC, Hamilton Standard	Jan. 20, 1955	684,000		342,000
55-187	TN-1	Grumman Aircraft Corp	Jan. 3, 1955	23,489,848	[1]	

[1] No cost.
[2] Estimated portion of total claim under the contract allocable to this termination.
[3] Probable no cost.
[4] Rescinded.
[5] Estimated.

Contracts terminated

COST-PLUS-FIXED-FEE CONTRACTS

NO as contract No.	Termination No.	Name of contractor	Date of termination	Contract value of items terminated	Remarks
9403	TN-1	Grumman Aircraft Corp	June 25, 1953	$778,000	(1).
9494	TN-1	General Motors Corp., Allison division	Jan. 29, 1954	1,271,731	(1).
10134	TN-1	do	Apr. 19, 1954	309,478	(1).
10198	TN-1	do	Dec. 18, 1953	1,395,234	(1).
10208	TN-3	Goodyear Aircraft Corp	June 30, 1953	650,600	(1).
10372	TN-1	General Motors Corp., Allison division	Apr. 19, 1955	19,065,000	(1).
11028	TN-1	Westinghouse Electric Corp	Mar. 13, 1953	1,070,178	(1).
11055	TN-1	General Motors Corp., Allison division	Apr. 13, 1955	1,334,979	(1).
11083	TN-1	do	Oct. 5, 1953	3,922,753	(1).
12026	TN-1	Douglas Aircraft Co., Inc	Sept. 7, 1954	31,340,123	(1).
12054	TN-1	Grumman Aircraft Corp	June 25, 1953	581,000	(1).
12054	TN-2	do	Aug. 6, 1953	9,670,917	(1).
12138	TN-1	General Motors Corp., Allison division	Jan. 29, 1954	879,000	(1).
12253	TN-1	Bell Aircraft Corp	Oct. 23, 1953	1,580,828	(1).
12280	TN-1	General Motors Corp	Sept. 17, 1953	1,155,071	(1).
51-164	TN-2	Chance Vought Aircraft, Inc	Sept. 16, 1954	394,196	(1).
51-298	TN-2	Sperry Corp	May 15, 1953	1,331,869	(1).
51-513	TN-9	Sperry Gyroscope Co	Feb. 19, 1954	2,500,000	(1).
51-527	TN-1	Consolidated Vultee Aircraft Corp	Oct. 14, 1953	1,813,363	(1).
51-591	TN-1	W. L. Maxson Co	Sept. 15, 1953	478,018	(1).
51-602	TN-1	Westinghouse Electric Corp	Mar. 9, 1954	1,382,000	(1).
51-875	TN-2	do	Sept. 29, 1954	1,291,592	(1).
51-1061	TN-2	Douglas Aircraft Co., Inc	Jan. 8, 1954	648,000	(1).
51-1112	TN-1	Avion Instrument Corp	Sept. 4, 1953	552,746	(1).
51-1233	TN-1	Grumman Aircraft Corp	June 25, 1953	2,423,000	(1).
52-044	TN-1	General Motors Corp	May 9, 1953	420,000	(1).
52-598	TN-3	Westinghouse Electric Corp	Apr. 20, 1955	368,000	(1).
52-874	TN-1	General Motors Corp., Allison division	July 16, 1954	315,000	(1).
52-939	TN-1	do	May 7, 1954	589,758	(1).
52-1057	TN-1	Grumman Aircraft Corp	Mar. 1, 1954	1,500,000	(1).
53-285	TN-1	Chance Vought Aircraft, Inc	Apr. 1, 1955	835,574	(1).
53-346	TN-1	Sperry Gyroscope Co	Jan. 21, 1955	696,196	(1).
53-556	TN-2	Westinghouse Electric Corp	Oct. 29, 1954	3,620,251	(1).
55-253	TN-1	Fairchild Engine & Aircraft Corp	Mar. 8, 1955	1,605,668	

[1] Cost-plus-fixed-fee contracts. Costs being vouchered out in accordance with sec. XV, Armed Services Procurement Regulations. Fee reduced or to be reduced by negotiation.

COST-NO-FEE CONTRACTS

1074	TN-1	Westinghouse Electric Corp	Apr. 10, 1953	$2,000,000	(2)
1074	TN-2	do	July 22, 1953	1,342,463	(2)
1074	TN-3	do	Aug. 12, 1953	5,550,000	(2)
1114	TN-1	Ford Motor Co	Apr. 4, 1953	40,000,000	(2)
1114	TN-2	do	May 29, 1953	942,888	(2)
1114	TN-4	do	June 18, 1953	3,383,500	(2)
1114	TN-5	do	Aug. 28, 1953	673,799	(2)
1114	TN-10	do	May 7, 1954	326,576	(2)
1119	TN-2	Chrysler Corp	Aug. 26, 1953	328,940	(2)
1119	TN-3	do	Sept. 28, 1953	943,928	(2)
1149	TN-1	Marine Aircraft Corp	Apr. 7, 1954	304,798	(2)
1177	TN-1	General Motors Corp	July 28, 1953	8,413,134	(2)

[2] Cost type, no-fee contract. Costs being vouchered out in accordance with cost principals set forth in sec. XV of the Armed Services Procurement Regulations.

Mr. BALWAN. Yesterday we got into a discussion on the accident, or incident reports, of which there are obviously three versions. I would request, Mr. Chairman, that either we reconcile those today and get out something which can be for the consumption of the public, or that perhaps the staff do that with the three parties involved and arrive at some summary which can be released and made part of the public record.

Mr. HOLIFIELD. Can that be done? In other words, I believe 11 crashes have been testified to, and could there be an agreement on the A, B, and C degree of damages in those instances?

(The material referred to is as follows:)

The following definitions of "aircraft accident" and "aircraft incident" below are taken from the OPNAV Instruction No. 3750.6A, Navy Aircraft Accident, Incident, and Forced Landing Reporting Procedure, Office of the Chief of Naval Operations, April 23, 1954.

Definitions and terminology

Aircraft accident.—An aircraft accident is an occurrence which results in damage to the aircraft between the time an engine or engines are started for the purpose of commencing flight until the time the aircraft comes to rest with all engines stopped for complete or partial deplaning and/or unloading. Death or injury to personnel and/or property damage not coincident with damage to the aircraft does not constitute an aircraft accident.

Aircraft incident.—An aircraft incident is an occurrence involving Navy aircraft which results in:

(*a*) Death or injury to personnel or damage to property, not coincident with damage to the aircraft, while the engine(s) is/are running, with intent for flight. It includes death or injury resulting from emergency parachute jumps by any occupant of the aircraft, or from test, practice, or operational parachute jumps.

(*b*) Damage resulting from flight conducted under approved flight research and/or development programs and projects, when it is known prior to flight that such damage may occur. This subparagraph will not be construed as applying to test flights required as a result of maintenance having been performed, aircraft acceptance flights, or other operations not specifically connected with a definite and approved research and development project.

(*c*) Damage to the aircraft while it is in flight when such damage is incurred by bird strikes, lightning strikes, or hail and the aircraft is landed without further damage.

(*d*) Loss in flight of propeller, canopies, doors, hatches, life rafts, cowling, auxiliary fuel tanks, or externally carried equipment not essential to flight, when no further damage to the aircraft is incurred.

Admiral RUSSELL. Yes, sir.

Yesterday, for the record, I clarified the number of accidents, in the Navy parlance, accident reports. In every case where an airplane has been damaged in an accident, there is an accident report, and I clarified the number and what type of aircraft, which type of F3H they applied to, yesterday.

We have not only this list which we will give to the staff, but also whether or not we agree with, (1) the aircraft manufacturer and, (2) the engine manufacturer, as to the cause.

Mr. BALWAN. Do you have all three summaries? Do you have the engine manufacturers' summaries?

Admiral RUSSELL. No, sir. We know whether or not the engine manufacturer agrees with us in our analysis of the accident.

Mr. BALWAN. Mr. Chairman, I would prefer that the admiral would give us the statements by the Westinghouse people themselves, as well as the McDonnell people, on the summary of accidents and the causes for them.

Mr. HOLIFIELD. We will request at this time that the three people involved—the Navy, the McDonnell people, and the Westinghouse people—each furnish us, furnish to the staff, the list of the crashes involved with the J40 engine, and the degree of damage which they ascribe to those particular crashes, whether they are called crashes, accidents, or incidents. And then the staff will, in further consultation, try to come to some fair evaluation of the respective opinions.

Admiral RUSSELL. For the unclassified record, obviously some parts of this will have to be deleted.

Mr. MORGAN. Mr. Chairman, do you want to limit this to the J40 engine or to the first 60 F3H's that were delivered? The figures that have been thrown about have been in reference to the first 60 F3H's that were delivered. Those were the figures that I referred to in my testimony, and those were the figures that were originally given to us by Captain Dietrich, I believe.

Mr. HOLIFIELD. They all had J40 engines?

Mr. MORGAN. No, sir. One of those had a J71 engine. It was 1 of the 4 F3H's that was converted to a prototype 2N.

Mr. HOLIFIELD. I think that group is what we want, including the one that had the J71 engine, because we make a differentiation in this one case. This was a McDonnell airframe, with the J71 engine.

Mr. BALWAN. Can that be inserted in this record which we are developing, the unclassified version?

Mr. HOLIFIELD. Yes, the unclassified version of that, when finally submitted, will be printed in the record at this point, in the final record.

(The information referred to is as follows:)

Accident record—XF3H, F3H–1N, F3H–2N

[Aircraft Accident Report Record NAVAER–2879 (New 7–52)]

Pilot	Model	Bureau No.	Date and time	Location	Purpose	Weather	Injuries		Damage	Remarks
							Pilot	Crew		
Mr. Houghton	XF3H	125444	Aug. 2, 1952	Pratt, Kans	MAC test	O. K	E		B [1]	J40–WE–6 engine turbine failure; landing short of runway.
Mr. North	XF3H	125444	Mar. 9, 1954	St. Louis	do	O. K	C		A	In-flight fuel explosion; J40–WE–8 engine.
Mr. C. Brown	F3H–1N	133489	Mar. 16, 1954	do	do	O. K	E		D [1]	Engine turbine failure; oil line failed; bearing seizure; dead stick.
Lt. N. Smith	F3H–1N	133490	Mar. 18, 1954	do	U. S. Navy evaluation.	O. K	C		A [2]	Engine turbine or fuel line failed; fire; bailout.
Mr. North	F3H–1N	133491	Nov. 1, 1954	Pax River	Taxi engagement.	O. K	D		A	Taxi engagement; arresting gear failed.
Comdr. K. D. Smith	F3H–1N	133499	Feb. 19, 1955	do	BIS trial	O. K	A		A	Power-control loss in intentional dead-stick landing.
Mr. Todman	F3H–2N	133520	Feb. 23, 1955	St. Louis	MAC test	O. K	A		A	Failure of 1-piece windshield, suspected cause.
Mr. R. Strange	F3H–1N	133495	May 18, 1955	do	do	O. K	A		A [2]	J40 compressor stall; ejection-seat malfunction.
Mr. A. Seawell	F3H–1N	133494	July 7, 1955	do	do	O. K	A		A [3]	Nonafterburner takeoff was not successful.
Mr. Mills	F3H–2N	133549	Oct. 6, 1955	do	do	O. K	D		A	Inverted spin demonstration; pilot ejected.
Lieutenant Shaeffer	F3H–2N	133558	do	Pax River	BIS trial	Night visual	D		A	Level formation flight collision; pilot ejected.

XF3H uses J40–WE–6, –8 engine ..... 2 accidents.
F3H–1N uses J40–WE–22 engine ..... 6 accidents.
F3H–2N uses J71–A–2 engine ..... 3 accidents.

[1] Indicates Navy, MAC, and WECO agree.
[2] Navy disagrees with WECO.
[3] Navy disagrees with MAC.

NOTE.—Navy position on accidents in which there is disagreement to the amount of engine responsibility:

Mar. 18, 1954: Engine turbine blade failure caused a sequence of events leading to crash.
May 18, 1955 (fatal): Engine stall was a secondary cause.
July 7, 1955 (fatal): Pilot failed to engage afterburner and crashed on attempted takeoff.
Signed by J. F. Bolt, Lieutenant Colonel, USMC.

69221—56——18

Mr. BALWAN. Mr. Chairman, yesterday we got into a discussion of the board of investigation report, the board convened by BAR, St. Louis. The staff had some difficulty in getting this investigation report, and still does not have it. The Navy testified why they could not deliver it. It came in to Navy, and then it got out because of some lack of agreement or an instruction for further investigation, as I remember it.

The request is: May we have that report for the record? If it is classified, we will keep it in our file. The unclassified portion of that we would like to have in the record.

Admiral RUSSELL. Yes, sir.

Mr. BALWAN. That will be provided?

Admiral RUSSELL. It will.

(The report referred to contains classified security information, and is being retained in the subcommittee files.)

Mr. ROBACK. Mr. Chairman, the Secretary of the Navy for Air, Mr. Smith, made an address before the Institute of Aeronautical Sciences on March 11 of this year, in which he made policy statements, and he was in the process of describing Navy experience with airframe and engine, mostly engine, manufacturing problems. He stated:

> An indemnity clause might have a salutary effect and might help restrain the contractor's ebullient optimism about his guaranteed ratings and promises of delivery.

I ask that this complete statement be made a part of the record, and request, with your permission, that the Navy give us a summary of discussions or proposals in the Bureau of Aeronautics with respect to the value of an indemnity clause in contracts.

Mr. HOLIFIELD. Can that be provided?

(The speech of Assistant Secretary Smith referred to is as follows—see p. 273, Use of an Indemnity Clause in Bureau of Aeronautics Contracts:)

[Hold for release until delivery of address expected at 7 p. m. (eastern standard time), Friday, March 11, 1955]

DEPARTMENT OF DEFENSE

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ADDRESS BY ASSISTANT SECRETARY OF THE NAVY FOR AIR JAMES H. SMITH, JR., AT THE INSTITUTE OF THE AERONAUTICAL SCIENCES, 10TH ANNUAL FLIGHT PROPULSION MEETING, HOTEL CARTER, CLEVELAND, OHIO, FRIDAY, MARCH 11

REALISM IN PLANNING ENGINE AND AIRCRAFT PROGRAMS

I am pleased to be speaking to the representatives of the engine industry and honored by the invitation. When asked to address this group, the subjects suggested were the "Navy's problems in the propulsion field," and "What I expect from industry." These subjects recall the problem in the mind of everyone connected with ourt aircraft-procurement program when I arrived in office. We had definite, I might say fantastic, propulsion problems. Not only that, they were very easy to pinpoint, which in itself is something quite unusual. These all too obvious problems reduced to just this: Where is the propulsion? All our aircraft programs and especially the high performance aircraft, in which we were most interested, were ready to roll except that there were no engines.

I would like to take one quick look backward to see where we're going and what we have today that 6 or 7 years ago we did not expect to have. In specific fuel consumption we have moved from 1.2 to 0.8, an improvement of one-third. In terms of pounds of weight of the engine per pound of thrust we have moved from 0.6 to 0.34. We have cut frontal resistance of the power unit one-half by going

from 770- to 1,560-pound thrust per square foot frontal area. Engines have been realized that will fly at altitudes and speeds beyond the realm of our dreams of even 15 years ago. Consequently, when we talk of problems that we may have today we must always measure these problems in relationship to the rate of progress being made. For this reason I find an encouraging rather than discouraging element in the realization we have so many problems. In other words, it means to me that our rate of progress is at a sufficient level to keep presenting us with new challenges.

This session of the institute is concerned with research and development which provides the solution of our technical problems and the escalator of our progress. I shall concentrate on that phase of development in which the payoff is made, the phase in which development leads into production and thus to usefulness to the fleet. From the point of view of the contractor it leads into production, profit, and the establishment of a reputation which sets the pattern for satisfactory relationships in the future.

After the experience of the last few years, the question what we expect from the engine industry could be answered casually and flippantly by saying that all we need are a few good operational engines. The problem is of most serious proportions. It requires serious analysis and serious answers—answers which I would be most presumptuous to give—they require attention of all of us.

Let us now examine the present development problem step by step in the Navy. Let's look at its results and their implications. Let us look at how it came about, and see how we could alleviate it if we would profit by our past mistakes. I'll take the risk of covering ground with which you are generally familiar because I would like you to know not only the way the situation has seemed to develop, but how it appears to us from the Navy side of this partnership.

First, in the process of meeting our naval responsibilities we look ahead and foresee the type of future military problem or mission which we have to solve. This demands an aircraft of certain general performance characteristics and in turn generates a need for an engine of performance usually superior to anything currently available. If this need appears to be sufficiently certain and pressing we will presently get an engine of suitable characteristics into development. It would be possible to digress for some time on the subject of how an engine project is initiated, but let's assume that a most attractive engine has been started.

Now, having in hand a needful mission and a promising engine, we have the right conditions to synthesize beautiful aircraft designs as spontaneously as the appearance of mushrooms in the morning.

The next reasonable thing to do after selecting a good aircraft design is to figure out lead time, to make out appropriate production schedules for the aircraft and its engines and then having all parties working toward a common purpose, to let time work its magic. It is not too long after this point of departure that trouble begins to appear. The aircraft is built roughly on schedule, but the engine is a different matter.

It generally turns out that there is unanticipated difficulty in making engine ratings. As explained by the engine contractor, this difficulty occurs in some of the most peculiar and curious combinations: For instance, if we could spare a couple of hundred pounds of weight we could get more thrust; or we could get a lighter weight engine if we would relax a little on fuel consumption; or we could have a combination of, say, better fuel consumption and easier maintenance if we would not be in such an all-fired hurry to have the engines. It almost seems as though Emerson's law of compensation were at work in the engine, except that when the resulting performance is figured into the aircraft mission the radius almost always suffers. This little deficiency is converted in the pilot's more practical mind to 1 of 2 possible results—the aircraft either will not reach the target or will not return to base.

Thrust ratings are not the only difficulty; durability and reliability are seldom what is expected either, so we have to reschedule the engine production in keeping with the delays in development. That requires a rescheduling of the aircraft also; only this hurts, because the aircraft is well along and will soon need some flight time to determine what corrections are required for it. This is a problem with which we all wrestle, by "all" I mean the Navy, the engine contractor, and the aircraft contractor. We come to the conclusion that if we would accept engines somewhat less than fully qualified and fully rated, we could get some early preproduction engines for flight testing the aircraft at a more reasonable date; so we redesignate them as "Y" engines making the first deliveries as derated short life articles instead of what we first designed for. Temporarily, everyone is happy, the project officer thinks that he has avoided

a large delay in his aircraft program, the engine contractor has a little breathing time, and the aircraft man thinks that he will be able to explore his aerodynamic and control problems. Seemingly it is nice; the only trouble is that the next year we have to go through the whole process again because of more unanticipated difficulties in the engine development. This may go on several times, until as much as 4 years' delay accumulates. I will not dwell on the administrative wrangles characterizing this period which involve demands for more engine-test facilities, for more money to cover overruns, and for more test engines to replace those which have seemed to melt away.

Meanwhile from the aircraft side of this strained marriage there comes a frantic search for an alternate engine. It is this kind of an anguished situation which engenders ideas like "we'll never again design an aircraft so that it will take only one engine," or "we ought to have standard sizes so that if one doesn't work we can grease up another one and slide it in."

Finally some of the early preproduction engines are delivered. When we get them we learn that they are almost what we want except for some insignificant part, let us say turbine-blade retainers, and because these wear out after 35 hours our engines must be pulled and overhauled at that time. We soon hear from the aircraft manufacturer, too. He says that our engine had 16 hours on it when he received it, he had to put 9 hours on it before it was ready to fly, and now after only 10 hours of flight testing he has to pull our 35-hour job and send it back for overhaul. He is dropping behind in his demonstration of the aircraft and he has an assembly floor full of parts which would probably need rework if he could get to flying. He also keeps us well informed of his purpose in life which is to develop aircraft, not to work the bugs out of our engines by using his precious X aircraft as flying-test beds. In other words, at this stage he wants reliable engines, not those dream beauties he sees in advertisements. He conveniently forgets that he willingly accepted a new and untried engine because it gave his design better performance than his competitor promised. He doesn't say much about the terrific cost to the taxpayer and the Navy of buying and overhauling the many short-life engines needed for the flight testing.

The next situation in this course of events is the prospective buildup of many production aircraft without engines.

At the same time costs to the Government are mounting at a most alarming rate; the investment in engine production tooling and parts manufacture already far exceeds that in the engine development itself, and the corresponding aircraft figure is greater yet. Because this huge investment is dormant, it is running up overhead costs, and even beyond that this equipment is growing obsolescent as we wait through attempt after hopeful attempt to see the engine prove itself in a qualification run. We finally come to the point where we are resigned to accept any course which gives promise of getting the aircraft program off dead center. To ease this situation in advance of engine qualification we do not wait for demonstration of engine durability but accept a quantity of 100-hour engines. This move eases the production bottleneck and starts the new aircraft into the fleet. But it buys the Navy only 4 months' time. After 4 months the fleet accumulates 100 hours, has pulled the engines out of the aircraft and needs spares for replacement. Right there we are in trouble again; spares were ordered on the basis of supporting qualified engines which would average 300 to 400 hours before overhaul so there are nowhere near enough for 100-percent replacement at 100 hours. Perhaps we could quickly overhaul the pulled engines? Unfortunately, the overhaul program was also planned on the basis of a respectable engine life and cannot cope with this frantic demand for immediate high-gear operation. Another aspect of this overhaul of 100-hour engines is that it is unduly expensive because of the large number of parts needing replacement in order to modernize the engines to a qualification configuration. Naturally, too, there is a scramble for these scarce, new parts because they are needed both for the fleet and for the aircraft production line. That is how our problem has unfolded. Let us now look at its results.

RESULTS

I can hardly say that any resemblance of the characters in this drama to living persons is quite coincidental. This is a recognizable situation for which the taxpayer and the Navy pay dearly and in which we have our faults. There are several ways in which the resulting cost can be appreciated. For instance, the many pauses in the program require retooling to cover changes in the production engine. The early articles require extensive modification, perhaps 50 percent parts replacement if we are to get a useful life from them; this may effectively

double the engine cost. Sometimes the early articles are so derated in performance and their life between overhauls is so short that rather than continue them in service they are discarded as making too little contribution to the total program. Another possibility is to relegate the early aircraft with their interim derated engines to training activities where combat performance is not demanded. And finally the most drastic action may be in order—cancel the whole project—but the resulting irreparable loss in time and money and delay of delivery of combat aircraft to the fleet makes this a last and most undesirable resort after production has been ordered and parts fabricated. A concrete example of the amount of the Navy's investment in specific engine-airframe programs will drive my point home. You are aware of the problems which have beset the F7U and F3H programs which depend on J–40, J–46, and J–71 engines. The Navy has an investment of over $1 billion in these programs, excluding GFE.

Whatever we do, the engine-airframe combination when it reaches the fleet is in a semiobsolescent status; this is true because the airframe by that time is of an earlier design vintage than it need to have been and therefore lacks the latest state-of-the-art knowledge which we have a right to expect when we pay the price for new articles. Looking back to the starting point this result is far from what was predicted when the project was commenced amid such sparkling predictions. We can appreciate the sadness of this situation when we observe that newer aircraft designs, undertaken a few years later, are able to match the known engine characteristics with the latest aerodynamic advances and come out with a more modern aircraft at about the same time with less turmoil and consequently at less cost. Hence we must assure that our airframe designs be based upon engines which have given positive evidence of timely, successful fulfillment. That is the problem as we have encountered it in too many cases. If we, in the Government, and you, in industry, are to collectively share our responsibility to the people of this country who painstakingly offer up their tax money so that they may have military protection, it is necessary that we examine this situation to see how it came about and to understand what we can do to improve it.

WHY WE HAVE A PROBLEM

When we look back over our experience an analysis shows that the source of our trouble was the common misunderstanding as to the length of time required to develop a jet engine to an operationally useful state. We in the Navy underestimated the time by one-half and established our production schedules accordingly. Our scheduling would have been just about right if the engines had required only the estimated 3 years in development, but when they actually took twice that long the rest of our program had to go through violent readjustments. By this time we can see the mistakes we all made, we have an understanding of their cause, and our Government-industry team should be reacting in a way to prevent recurrences. If we observe what is actually going on today, is it reassuring? Are we able to profit by mistakes?

This is the way it looks to me. The engine contractors show us their availability estimates for their new engine designs, and it seems that in making their time estimates they leave no contingency for the usual development setbacks which past performance proves to be inevitable. Even though the Government is far less competent to do so, it is left to us to implant realism in the hopeful schedules so submitted. However, the airframe people must use these estimates as the best available data and soon come in with very attractive advanced aircraft designs based upon the paper performance and dates they have received. These beautiful designs they sell hard and convincingly. In the pervading atmosphere of optimism about the future it is difficult for the Government people to keep level heads to prevent setting up the very kind of situation which we have had in the past. It is something like the technique where the constant repetition of an impossibly optimistic plan becomes harder and harder to refute. It seems as though both the engine and aircraft contractors were content with the short-range view that a big contract in hand on which delivery is shaky is better than the chance of a really sound program at a later date. In plainer words, let's get a big contract backlog now and tackle the production problem later.

Industry shares with the Government a responsibility for the overall safety of the country. In exercising that responsibility it needs to show a mature and restrained attitude in planning new aircraft models if we are to achieve results. The restraint would come in the form of realistic planning and in the selling of future programs based on estimates on which the estimator realizes his reputa-

tion is at stake, not on a headlong urge to build up the backlog, come what may. As the engine and airframe development contracts generally call for payment of costs plus a fixed fee, the contractor is concerned but not financially worried about his mistakes. He knows he is going to be paid as long as he puts forth his "best efforts." That phrase is usually a question of opinion and not facts. An indemnity clause might have a salutary effect and might help restrain the contractor's ebullient optimism about his guaranteed ratings and promises of delivery. An outstanding performing engine of today if delivered 3 years late is as valuable as last year's bird nest. The rest of the world will move ahead whether we do or not. In any case it is required of the Government that it evaluate as objectively as it can the claims of those bidding for future business and one of the most important considerations is, "How did this contractor perform in meeting his promises in the past?" A reputation to deliver what is promised when it is promised is essential to the contractor who would wish to be a part of an integrated military program; it is a reputation to be highly desired, as it is becoming the sine qua non in the Navy's procurement policy.

We could note that this puts the Government in a paradoxical position; it is our function to stimulate progress, to encourage our people to reach far ahead. At the same time we would seem to be holding back those who would offer us juicy designs the likes of which we have never been able to achieve in the past. The worse our current troubles, the rosier the future would appear by contrast. By discouraging these harbingers of future glory we are denounced as throttlers of creative imaginations. What we in both Government and industry are called on to do is to sponsor the urge to advance rapidly in the field of research while at the same time we show a reasonable prudence in adopting unproven ideas to quantity production.

WHAT WE CAN DO ABOUT IT

In our overall planning we must have perspective. As we have glanced backward earlier in this talk, we must look forward for 10 to 15 years—we must establish some long-term objectives so that we can gage our progress not as individual 100-yard dashes, but as a 6-day bicycle race in which there is constant progress toward an established goal with occasional bursts of great speed to achieve specific prizes. The long-term objectives include as well as the measurable items known to you such attributes as reliability and adaptability to field use. I see nothing today that indicates our next war will provide us with the luxury of engineering services, time to consult operating manuals, O. and R. facilities, test benches, etc. The engine which will not turn up when the whistle blows is the modern horseshoe nail.

In our research and development we must make certain that we have the scientists, the laboratories, test facilities, etc., to achieve the desired rate of progress. These do not turn up by chance. They must be planned. The individual items must form part of a whole which is tailored to the long-term job. They must avoid duplication and, more important, they must avoid gaps.

In the area between research and production we must have realistic evaluations. We must reach decisions which of necessity require great judgment and also require that the engineering data be sound and that speculation be clearly marked as such.

In production we must operate to schedules. It must be remembered that the engine which comes off the line late throws out of gear all the other production lines which are fitted to it—the airframe, the Government-furnished equipment, the flight personnel, the maintenance crew, the carrier—with the end result that our combat readiness is reduced. Today, whether we like it or not, the degree of combat readiness is a barometer carefully and frequently scanned while making decisions on the most important international issues.

In the industry we must be certain there is enough private capital to provide incentive, and equally that there is enough reward for results to bring about new investment.

In operations we must have powerplants from which the average pilot—already something of a superman—can squeeze a high percentage of optimum performance at the same time as he does a number of other difficult jobs. We must remember he has limited time and senses to devote to a tempermantal engine. Current military planning rarely affords the availability of a flight engineer to aid pilot.

With regard to maintenance we must have engines that will run maintenance free long enough to complete their missions. It must be remembered that the

consumers of your product are thousands of miles from your factory and from your service and sales people.

I would now like to say how all of this can be done. Frankly, I do not know. I had hoped that someone would tell me. Since being invited here I have been put on a committee whose job it is to come up with a long-term program covering many of these items. This committee is still at work, and naturally I cannot predict their conclusions here. I do know, however, that both the Government and industry agree that the progress being made could be made more easily. I realize also, that there are strong views pro and con various suggested ways of running the business. I personally welcome this. It is a sign that the people dealing with the problem both in Government and in industry are alert and agressive.

Admiral RUSSELL. May I make just one or two little comments on this?

Mr. HOLIFIELD. Yes, sir.

Admiral RUSSELL. In this great American democracy and team of industry and Government, occasionally you drive the spurs rather deeply into the fellow you are trying to get something out of, and this speech of Mr. Smith's was precisely spurs into the jet-engine industry. He is trying to make them step out farther into the forefront.

Now, as far as an indemnity clause is concerned, don't ever kid yourself, the Government is going to pay for it, because these people cannot take the risks which we must take to stay in the forefront, militarily, by themselves. They would go broke.

So we put an indemnity clause on, we pay for it in the long run in a higher-priced engine, I am sure of that, so it is a very difficult area.

You want to provide the utmost stimulus to the people to stay out in front, obviously. This is our duty to the country, to keep the highest performance airplanes out, get them out in service. And our contractual relationships, indemnity clauses, termination for default, all figure into how you stimulate and make this situation better.

Mr. HOLIFIELD. I think the committee is aware of the difficulty which you have in dealing with these engines, with these great corporations. We are also aware of their obligations to this country. It is not one-sided, we realize that.

Mr. ROBACK. Admiral Russell, the request carries no inference that we consider it favorably or unfavorably. We merely are trying to find out what consideration if any has been given in the Bureau.

Admiral RUSSELL. This will be provided, sir.

(The material referred to is as follows:)

USE OF AN INDEMNITY CLAUSE IN BUREAU OF AERONAUTICS CONTRACTS

1. The Military Operations Subcommittee has asked what consideration has been given to using an indemnity clause in Bureau of Aeronautics contracts. The meaning of the question is not entirely clear. This Bureau's contracts contain guaranties that the supplies to be delivered will meet certain performance requirements, and also contain provisions under which this Bureau can require a contractor to correct defects in articles which have been delivered to the Government, if notice of such defects is given within 6 months after acceptance, or such other time as is specified in particular contracts. If this Bureau does not wish to require correction of the defect it may require an appropriate reduction in the contract price. These provisions may constitute the kind of indemnity clause which the subcommittee has in mind.

2. The subcommittee may, however, be thinking in terms of performance bonds or provisions for liquidated damages, or both. Neither of these devices is used in this Bureau's contracts, because they are inappropriate for procurement of specialized military equipment. Change orders initiated by the Government and

other matters constituting excusable delays are virtually certain to occur in every case, and administration of a liquidated damages clause would be a very involved matter. Further, it is believed that such a provision would not be a fair one to impose upon a manufacturer of complex military equipment. Without a liquidated damages provision, a performance bond would have significance only in the case of termination for default, as a means of making sure that any damages claimed by the Government could be collected. Particularly with respect to large airframe or engine contractors, the problem of financial stability is not a material one, and it is believed that the cost of a performance bond for a large airframe or engine contract might well be very substantial and the Government would doubtless pay such cost. Pursuant to statutory authority the Secretary of the Navy has waived any requirements for performance bonds with respect to contracts for manufacturing aircraft or other supplies for the Navy, although such bonds may be required, in the discretion of the chief of a bureau. However, for the reasons already discussed, this Bureau's contracts do not provide for either liquidated damages or performance bonds.

Mr. LIPSCOMB. Admiral, yesterday I believe it was Westinghouse said that the J40–22 was a temporary engine. Did you consider the J40–22 as a temporary engine?

Admiral RUSSELL. When Mr. Smith offered that testimony, he was referring, I believe, to its installation in the F3H1 as being a temporary measure to get that airplane into the air so we could fly it, could develop it and could train our pilots.

Mr. LIPSCOMB. Did you consider it as a temporary engine?

Admiral RUSSELL. We considered it as the only alternative to the more powerful engine, an alternative which would give us an airframe which was usable.

Mr. LIPSCOMB. Does that mean it was temporary or is that the engine that you anticipated using in the F3H–1N?

Admiral RUSSELL. It was the engine we anticipated after the failure of the J40–10 or –24 to come along.

Mr. LIPSCOMB. According to this testimony, in September 1953, the J40–22 engine was cut down, or at some period it was cut down. It says:

> On this basis production of the J40–22 engine as a temporary engine was undertaken and first deliveries of the engine were made in November 1953.

You considered it at that time as a permanent engine that you were going to purchase or procure for the F3H–1?

Admiral RUSSELL. That is correct, sir, and in limited quantities you will remember.

Mr. LIPSCOMB. Even though at that time you were even considering then that the J–71 would be the engine that you would eventually go to?

Admiral RUSSELL. After December of 1952 we planned to introduce the J–71 as early as we could in the F3H production line.

Mr. LIPSCOMB. Do you happen to know how many engines were on order as of——

Admiral RUSSELL. If my memory serves me right, there were 477 at one time, and these were cut back as requirements in airframes dropped. May I have Admiral Beardsley, the Assistant Chief for Procurement, testify to the numbers. The question was the numbers of –22's, maximum number on contract at any time?

Mr. LIPSCOMB. If the chairman has the time, I would like to go through the procurement on that J40–22 and how it was handled in comparison with what was known to you at the time about the J71,

because evidently according to my understanding, unless I am wrong, you knew roughly in 1952 that you were going to go into the J71 engine.

Admiral RUSSELL. That is correct. We would just as soon as we could. However, please remember that there were grave uncertainties as to the J71 engine at that time.

You will remember in executive session, sir, I showed you the blocks of time which were promised, which we got, and then the availability of the J40 series as against the J71, and the J71 as a matter of record, it can be said, has only passed its qualification tests, its 150-hour qualification test, as recently as July of this year, so we were dealing in an area of uncertainty in the J71 engine.

Mr. LIPSCOMB. What I am trying to arrive at is this. Is it your policy, for instance, when you know you are going into another engine, to leave an order or to order approximately 500 engines as a temporary engine for a frame?

Admiral RUSSELL. These were being cut back at the time, sir.

Mr. LIPSCOMB. Perhaps that is what I would like to know then, how they were cut back.

Admiral BEARDSLEY. I don't have all the exact dates, sir, when these cutbacks were actually made, and I don't have all the J40 engines sorted out exactly for the F3H program, but according to this computation here, we hit a peak of J40 engines of all types on order about December of 1952. That was our peak, and we had about 2,000 engines all told for all applications. In February 1953 we reduced that by 393.

Mr. LIPSCOMB. Excuse me, what was the total?

Admiral BEARDSLEY. The total was about 2,000, approximately 2,000. In February 1953 we reduced it by about 393.

In April of 1953 we reduced it by 400 more, and by September 1953 we took a thousand more off, and by September 1953 had only left about 217 engines.

So we were placing orders for the J71 engine, and bearing in mind, as we said in executive session again, it was only really a hope, it had not even qualified originally as a 50-hour engine, but as the hope became more and more a reality, we increased the 71 orders and cut back progressively on the –22.

And we can lay all the details out day by day on each contract.

Now, due to administrative reasons, we might have had a few more engines one day or another, but that large number of engines were terminated, most of them for no cost, the original ones for no cost.

It was that whole termination that I mentioned that cost about 5 percent of the cost of the engine, the cost to the Government was about 5 percent of the cost of the engine.

The reason it was so small is the manufacturer had done nothing to buy parts for any of those engines he had on order, because he was watching his development situation very carefully too.

We discussed it with Westinghouse, and he was buying parts only as he was coming along in his development. But we did cut back on the J40 engines as the hope of the 71 became more and more of a reality.

And I can actually furnish to the members of the staff here the exact days of the orders for each engine, and lay it on the record. We will furnish it to them.

(The material referred to contain classified security information, and is being retained in the subcommittee files.)

Mr. LIPSCOMB. From 1952 until 1955 you considered the J40–22 as a temporary engine?

Admiral BEARDSLEY. We considered it not as early as 1952 because the 71 had not fully qualified yet at that time, and in the Production Division where I had to accept the responsibility for this, we had to keep enough engines on order for all the aircraft that we had at the time, and we did have –40 engines on order, but as we placed more and more–71 engines on order, and bearing in mind that the promised delivery dates always had to be more than 14 months in the future, to get engines for even these first 60 aircraft, that is when we finally came down to the 217 engines.

In September 1953 we cut back, we only had 217 engines on order. Now you will say, "Why did you only have 60 engines on order"?

In the original days of jet engines we bought over 100 percent spares in many cases. We had to keep them going. They only had about 50 hours of life between overhaul, and as we have gotten more and more experience in the engine, and the engine manufacturer has been able to give us a better engine, more reliable, that lasts longer, we have been able to increase our intervals between overhauls. And as the engine becomes more and more developed, that interval increases.

Our total jet engines as far as the Bureau of Aeronautics is concerned, up to about a year ago when I made the last check, we had bought about 60 percent spares for all our installations of jet engines. Some engine models were higher, some lower.

Now it was our best judgment when we cut back to 217, bearing in mind the engine and our evaluation of the engine at that time and the use of the aircraft, it was the Bureau's overall judgment, the Maintenance Division, the Production Division, and the engineering personnel, that we should leave the 217 engines on order to be able to continue to fly the F3H aircraft.

Now on hindsight you might say we made a wrong decision, but the decision was made honestly to have enough engines to keep those planes flying. It was pointed out in executive session we would have gotten a great deal more flying if the 22 had come along about a year earlier.

Mr. LIPSCOMB. Is this the same policy that you are using in your office now of phasing these engines out from one that is not up to date to a new engine and canceling out orders and putting in new orders? Is it the same policy that you have used since 1951?

Admiral RUSSELL. This must be the policy where you have to order an engine 14 months in advance, you have to start it. If you don't start, you make no progress.

Mr. LIPSCOMB. Has there been any change in your procurement policy?

Admiral RUSSELL. Our procurement policies are getting firmer and firmer. Among other things the state of the art in jet engines is getting better. We are trying to develop ahead of time, sufficiently ahead of time, engines to go into new airframes.

I would like the Assistant Chief, Procurement, to speak a few more words on that if he may.

Admiral BEARDSLEY. There is another aspect to that that you gentlemen should be familiar with. I have heard it reported that some of our newer engines have cost upward of $60 million to develop. We do not in the Bureau of Aeronautics get any kind of money like that in our research and development program for the development of engines.

If you examine the record there of how much we actually had for the development of J40 engines, you will find that to be so.

The policy as I believe it is now in the Department of Defense so far as the development of engines is concerned, is that we will carry the development down through—well, it is the general policy to carry the development of the basic idea of a new engine down to some point let's say, about the 50-hour qualification or thereabouts, and we have to pick up with production funds, taking this idea and learning how to tool up and build the parts that will stay together under operating conditions with production funds.

So the problem is to take an engine that has been carried so far with development funds, we pick it up with production funds to really put it into production.

Now one of our problems is that we should be buying these engines and fully developing them at the earliest possible date. If we wait until an engine has passed its 150-hour qualification and if we have bought 50 to 100 house engines to do this and some engine we want to fly in airplanes, in the belly of an aircraft, not as a powerplant but to get it up in the belly of a large aircraft to actually operate it in the air but not to fly the plane, we will have to go ahead with large sums of money, of production funds to do this.

Now if we wait until an airframe manufacturer starts an aircraft around, bearing in mind it takes him 4 or 5 years to develop his plane, we will not get the ultimate in performance that we simply have to have.

And I want to emphasize the point again. So we must start the airframe manufacturer looking ahead to pick the engine he thinks is going to be ready, and we think is going to be ready and the engine manufacturer promises will be ready. I hope I make that point clear.

We can start the development of an engine, it may take 5 to 6 years to develop an engine of reliability, but before that time the airframe man must start, and on every occasion he looks the field over, either on a recommendation from the services or himself. He talks with every engine manufacturer in the country.

He makes his own evaluation of when he thinks that man is going to be successful. And he tries to pick the proper engine.

No reliable airframe manufacturer would knowingly design an aircraft around an engine that his engineers didn't say they thought would be ready.

Mr. LIPSCOMB. Is this the so-called FIRM plan, or is this the policy of your department, or is this what you call the fly-before-you-buy policy?

Admiral RUSSELL. This is the FIRM plan in my Bureau, sir.

Mr. LIPSCOMB. This is not a modification of the FIRM plan in any way?

Admiral RUSSELL. It is a part and parcel of the FIRM plan. The FIRM plan is a method of introduction of a new aircraft.

Mr. LIPSCOMB. Well, is this a fly-before-you-buy policy? Is this what I have heard here about fly before you buy?

Admiral RUSSELL. It is in general; yes.

Admiral BEARDSLEY. I might add a little bit more, sir. The point I was trying to make, I believe that we must in this country start airframe designs probably for particularly our fighter and high-performance bomber aircraft before we have an engine as fully proven in all respects.

Now one of the applications of the FIRM plan is to try to make a better decision originally at the point you want to make that gamble on the engine. At what point in the development of the engine do you want to take the gamble and say we expect it in 2 years from now or 3 years from now.

The other part of the FIRM plan is to build more than 1 or 2 aircraft to flight-test, but let's say you get 20 to 30 aircraft in flight-test status fairly early in the program, but only building them at the rate of 1 or 2 a month. We will not tool up for 30 a month. We will build just enough tools of a production type to build them at 1 or 2 a month, but we will be getting early flight experience.

But we will not schedule the aircraft for accelerated production until a little bit later, until we can prove the aircraft, until we can prove out the aircraft engine combination.

Mr. LIPSCOMB. I don't disagree with the method that you describe, but I don't like to see the tag tied onto the fly-before-you-buy, when it isn't so.

Admiral BEARDSLEY. It is the wrong terminology, sir. We do not fly all these before we buy, sir.

Mr. HOLIFIELD. Will my colleague yield on this. I think this is a good time to just clear up this FIRM plan.

We have heard a lot about it, the American people, and we all resort to slogans which seem to express in a general way what actually in a specific way is not the truth.

Now you have described, Admiral Beardsley, I think, remarkably clearly the problem which you are up against in terms of time to develop an operating airplane, and you have explained that while there may be some variance in the time of the engine development over a period of say 3 to 5 years, there is a comparatively shorter time for the development of the airframe around that engine, but that also has to go concurrently during that 3- to 5-year period.

Now your FIRM plan, if it is accepted by the general public as being a complete fly-before-you-buy article, it is wrong, it is the wrong interpretation.

What the FIRM plan is, as I understand it, is that you are extending your research and development time proportionately longer than you did in the past with a smaller amount of engines in that research and development period, and you are also, of course, thereby delaying the start of your production contracts a certain number of months. Now is that not true?

Admiral BEARDSLEY. I think I can answer.

Mr. HOLIFIELD. You extend your research and development plan longer than you have in the past in order to be a little bit more sure that you have got an article that will come through, not one that is finished but one that will come through satisfactorily, and then you

start your production contracts at a later period than you would have before in this 5-year period.

Admiral BEARDSLEY. You are correct, sir.

Mr. HOLIFIELD. Is that not what you really mean by the FIRM plan?

Admiral BEARDSLEY. That is correct, sir.

Mr. HOLIFIELD. And the difference is only a matter of a very few months; is it not?

Admiral BEARDSLEY. It could be a number of months, it could be 3 or 4 months or it could be as much as a year depending on the complexity of the particular model. I think the FIRM plan should probably be better stated fly before you place orders to have them built up in large quantities.

Mr. HOLIFIELD. Before you place production orders.

Admiral BEARDSLEY. For large quantities.

Mr. HOLIFIELD. For large quantities.

Admiral BEARDSLEY. Large quantities. Now the lead time, sir, on the airframe contract is about 18 to 22 months, so if you want him to start his production up on a certain day here at the end of all your testing, you have got to walk back the cat and place a production order 18 to 22 months, and if it is a primer, maybe 30 months earlier.

I want to try to make the point you may place your order before you have completed all your testing, but you don't schedule them to build up rapidly in production with heavy tooling until a little later in the program, when you know more about the configuration.

Mr. HOLIFIELD. So I think it is fair to say then that your FIRM plan is a modification and timing of a very few months between research and development and the starting of your production contracts; is that not a true statement?

Admiral BEARDSLEY. Generally true; yes, sir. It would depend upon the complexity of the model, sir.

Mr. HOLIFIELD. Mr. Roback.

Mr. ROBACK. Do we understand that in extending the development period somewhat, a present concept of that arrangement is that tooling up is concurrent with the development; otherwise if you have a development of the engine that is ready to go, you wouldn't be able to produce it unless you had that tooling up beforehand, so that you are extending backward the tooling up period.

Is that correct?

Admiral RUSSELL. You have solved all your production problems in tooling for mass production but you don't commit your large quantities until you have experience with the early models.

Mr. ROBACK. You're increasing the costs of tooling up and trying to save on the element of risk in putting production orders when you don't have a proven engine.

Admiral RUSSELL. Or airframe.

Mr. ROBACK. Does that requirement in effect limit the possibilities of developing new sources of engine manufacture?

Admiral RUSSELL. No; I don't think so. I think we should hold apart the research and development program a little bit here. You should really have a great number of research and development programs going along concurrently so you have some sort of a choice, a selection.

Mr. BALWAN. How many engine manufacturers are there, if I may interrupt?

Admiral RUSSELL. Large engine manufacturers, there are five in the country.

Mr. BALWAN. Is that enough?

Admiral RUSSELL. That is a very difficult question. It depends on quality more than quantity.

Mr. HOLIFIELD. It depends on the appropriations Congress gives you for research and development, doesn't it?

Admiral RUSSELL. Very definitely.

Mr. ROBACK. Insofar as the development work is related to tooling up requirements, tooling up and developing is done by the same company. You are not developing here and tooling up over there?

Admiral RUSSELL. No.

Mr. ROBACK. I don't understand your response, Admiral Russell.

Admiral RUSSELL. You asked me if you were tooling up here and doing developing there; the answer is "No." You are tooling up and doing design in the same plant.

Mr. ROBACK. In that sense and to that extent it is a limiting factor on the opportunity or the availability of new sources of engine manufacture.

Admiral RUSSELL. No; not necessarily. As I say, you want a very productive research and development field. You want many people working on new ideas.

Mr. ROBACK. My point is, Admiral Russell, suppose you let a development contract. If you are carrying out the general terms of this arrangement we have been discussing, you are not tooling up for a company which is just doing development work. Either it is an established manufacturer of engines who's scheduling the development and is tooling up or else you are placing contracts which have no relation to tooling up to some extent.

Admiral RUSSELL. That isn't quite true.

Mr. ROBACK. How can you place a development contract and have tooling up unless it is confined to these various engine manufacturers?

Admiral RUSSELL. He is the governing fellow, but very frequently another outfit is building the same engine. As the original contractor, let us say, gets well along into a model, he may taper off and let that model be made completely at another place. This is all done by Government arrangement.

Mr. ROBACK. That is a second source for that engine, but that is not a new engine.

Admiral RUSSELL. Not a new engine; no. I think what you are getting around to possibly is the fact how much talent in the country do we have and is it proper to concentrate it in different concerns? Is this in your mind?

Mr. ROBACK. That is a matter of subcommittee concern, I am sure. What I am trying to arrive at is, if you are putting forth a plan or a proposal by which there is a defined relationship between the development work and the tooling up work, that has to be confined to the established manufacturer. If there is any other way to do that, please inform the committee.

Admiral RUSSELL. Well, there is of course another way. You can put a development contract here and tell another company to build it. But it isn't done ordinarily.

Mr. ROBACK. That is what seems to be the case.

Mr. BALWAN. The question I have, Mr. Chairman, revolves around the concept which I believe must govern whatever policy we adopt in procuring airplanes, namely that policy which keeps us in air superiority over any other country. To some extent that is a function of time and of conditions that are occurring at that particular moment.

If we are in a Korean situation, we have different conditions which govern the way we operate.

Admiral RUSSELL. Correct.

Mr. BALWAN. Might not the policy which we adopt be a function of conditions? I will ask it this way. Can this policy——

Admiral RUSSELL. Namely?

Mr. BALWAN (continuing). This FIRM policy described by you and Admiral Beardsley be a policy which will function in a Korea?

Admiral RUSSELL. It can be made to function in a case of great expansion of the military, but you must have more earlier. Do I make myself clear? The FIRM plan, for example, in a certain month says we want a static test article, one which we can load with sandbags and break to find out how strong it is. We must have one model. We get one at the moment. We should have 2 and possibly 3 and we should get them earlier if we can.

How we can get them earlier, we would go to shift work which is more expensive. We would compress the FIRM plan and get in greater quantities earlier.

Mr. BALWAN. Is the FIRM plan we have just discussed a policy which we can afford at this time because of present conditions and one which we might have to alter in the case of another Korea?

Admiral RUSSELL. In my humble opinion it is a good policy under any circumstances.

Mr. HOLIFIELD. You have also testified that you would modify it and go on a crash basis with it in case of national emergency.

Admiral RUSSELL. Yes, sir, but the basic policy remains the same. In other words before you commit yourself to great quantities of production, you learn what you have.

Mr. HOLIFIELD. This committee had the same problem with TACAN and ARC21; in those instances the judgment of this committee was that both of those contracts involving many hundreds of millions of dollars were placed into production before an adequate period of research and development had occurred. I think the committee's judgment on that has been verified. Certainly it was verified to a certain extent by changes in the program. As I can see the FIRM program, it is a plan on the same principle which this committee has recommended in several of its reports, provided, it is applied in the way you have explained.

Admiral RUSSELL. Yes, sir.

Mr. HOLIFIELD. Is there any other question of Admiral Russell? If there isn't we will go to the next question.

Mr. LIPSCOMB. Mr. Chairman, I would just like to go back to the termination for a second.

Admiral RUSSELL. Yes, sir.

Mr. LIPSCOMB. After the terminations in September 1953, were there any J–40s in the –10, –24 or –26 left on contract?

Admiral RUSSELL. I believe the answer is——

Admiral BEARDSLEY. I am quite certain it is "No," sir. I am informed that the –10 and –12 were development contracts and we have never accepted any engines from those contracts, no production engines you see.

Mr. LIPSCOMB. Are you saying that there were development contracts after September—they were terminated when, please?

Admiral BEARDSLEY. They were terminated September 1953, sir.

Mr. LIPSCOMB. So is the answer to the first question, "No"?

Admiral BEARDSLEY. Just a second. I'm sorry for the confusion. May I ask that Westinghouse speak up in order to get the truth as quickly as possible?

Mr. HOLIFIELD. Mr. Smith, would you like to answer?

Mr. SMITH. There were no engines of those varieties left after the development termination. The answer to your question is "No."

Mr. LIPSCOMB. Does that include the Ford contract also?

Admiral BEARDSLEY. Yes.

Mr. LIPSCOMB. Was September 1953 or about this point the time at which the J40–F3H program was abandoned as far as a first-line fleet fighter was concerned?

Admiral RUSSELL. Yes, sir; there was always a hope that a better J40 might come up up until certainly September of 1953 and possibly beyond. September 1953 is about the point of abandonment of hope for the more powerful engine.

Mr. LIPSCOMB. What were the engines that were left on contract going to be used for?

Admiral RUSSELL. They were going to be used to power the F3H1. Admiral Dixon?

Admiral DIXON. I think you are getting at the point why did we continue to buy J40–WE22 engines after we shifted to the J71.

Mr. LIPSCOMB. I am trying to find out what the purpose for the plane was.

Admiral DIXON. We had a definite purpose for it. We realized it was not a first-class airplane but we realized from McDonnell's test program that it proved the airframe. We had plans to utilize it as transitional trainers for pilots going to F3H squadrons in the future. So the –22 engines were bought for the F3H–1 to utilize them in those roles.

Mr. LIPSCOMB. For a period of 2 years you let orders for approximately 145 engines.

Admiral DIXON. That would be a normal support for 60 airplanes, approximately.

Mr. LIPSCOMB. Was it necessary to have that many engines on order?

Admiral DIXON. I would have to appeal——

Admiral RUSSELL. Quite necessary in this case because it did not have enough hours in the air for the number of hours on the ground. You might want to shift engines. You should have two engines, maybe more.

Mr. LIPSCOMB. For training planes?

Admiral RUSSELL. Yes, sir.

Admiral DIXON. Those planes of ours were firm up until July of this year. We had anticipated operating 1 squadron on the east coast, 1 squadron on the west coast for training of pilots to go to the F3H2 squadrons, and we abandoned that in July of this year.

Mr. LIPSCOMB. When you continued with the WE22 it was pretty far ahead in an advanced development stage and it was being delivered.

Admiral DIXON. They were qualified. They met specifications.

Mr. LIPSCOMB. Why when you canceled the orders in July 1955 had there been installed only 20 engines or more?

Admiral BEARDSLEY. We will have to research the actual number of engines received. The statement was made previously that only 20 engines had been installed in airframes. I had a count made and I am advised there were 108 –22 engine installations made in 20 different airframes. The engines went out, they had to be taken out for various reasons, some had to be sent to Westinghouse to have changes made. I don't mean there were 108 separate engines. McDonnell made about 108 total engine installations. In addition to this he had to take numerous engines out of a plane to do work on it, disassemble it and put it back in the same airplane.

Early in the program you need a tremendous number of engines. Two or three years later at the tail end of the program when the plane and engine is well tested, you don't need your spare support. It is early in the program you need your engine.

Mr. LIPSCOMB. In the training program?

Admiral BEARDSLEY. In the development program of the aircraft. I would like to have you ask Mr. McDonnell if he did not use more than 20 engines in the aircraft. We tried to do everything we could for development and more than 20 engines were installed during that period.

Mr. LIPSCOMB. If this program had been abandoned as a first-line fleet plane, what were you developing this plane for?

Admiral RUSSELL. We were using this airplane as a test vehicle for solving the problems of aerodynamics and structure in the F3H2. We had planned to use it in a training program for pilots also.

Mr. LIPSCOMB. So you have taken the information and facts that you received from this plane and have put them on over into your other program, F3H2N?

Admiral RUSSELL. That's correct.

Admiral DIXON. We took the –22 engine aboard ship with the F3H aircraft and the first carrier suitability test was made on the carrier with that engine.

Mr. LIPSCOMB. I don't understand this.

Admiral RUSSELL. Among the tests, sir, in addition to flight testing to get the aerodynamics performance and make changes to the basic airplane to make it a better flying machine, this engine took this airframe on board ship.

It made many landings on the carrier. Did it have enough strength to resist the arrestation as it came aboard? Would it stand the catapulting strains? This is all part of the test program of which I speak.

Mr. LIPSCOMB. As a result of those tests, all the other factors, you finally washed out the whole program and took your knowledge and put it into a new program, the F3H2N with a new engine?

Admiral RUSSELL. Correct, sir.

Mr. ROBACK. Mr. Chairman, can we have for the record a chronology dating from the time the F3H–1's were delivered until they were finally grounded in 1955, indicating the different intended, limited missions in the downgrading process?

Admiral RUSSELL. This can be provided for the record.
(The material referred to is as follows:)

CHRONOLOGY OF DOWNGRADING OF THE MISSION FOR THE F3H–1 AIRCRAFT

January 3, 1949: Contract NOa(s) 10260 awarded for the XF3H–1 interceptor.
October 1950: Requirement for a long-range general-purpose fighter.
March 16, 1951: Contract NOas 51–640 awarded for the F3H–1 as a general-purpose fighter.
October 8, 1953: Contract NOa(s) 51–640 amended. F3H–1 aircraft designated F3H–1N (general purpose all-weather fighter).
March 28, 1955: CNO–OPNAV Notice 03110 Ser. 02098P50. Statement of planned introduction: F3H–1 a limited life, land-based development vehicle for the indoctrination and familiarization of fleet pilots.
April 29, 1955: BuAer recommended to CNO, (53) F3H–1N aircraft be stored at Litchfield Park.
May 17, 1955: CNO approved recommendation for storage of F3H–1N at Litchfield Park, less those needed for research and development.
August 8, 1955: BuAer advised CNO of requirements in nonflying projects for the first 26 F3H–1N's and recommended these aircraft be so allocated.
August 30, 1955: CNO approved recommendation to use first 26 F3H–1N in nonflying projects.
October 11, 1955: BuAer recommended to CNO that the remaining 26 F3H–1N aircraft be allocated to the nonflying projects outlined in letter dated August 8, 1955.

Mr. HOLIFIELD. Thank you, Admiral.

Admiral RUSSELL. Before I leave, may I say one other word?

Mr. HOLIFIELD. Yes, sir.

Admiral RUSSELL. This committee, I think quite properly, is investigating into the propriety of a naval officer leaving and accepting employment with an aircraft manufacturer. I have knowledge which is pertinent to this consideration, sir. Admiral Harrison was my deputy. As he testified, he did not want to go to industry. I think he was looking for a quieter life actually.

I think he would like to have gone to a college and become a professor. I feel that he went to industry because he considered it his duty after he was approached by Mr. McDonnell to accept employment there, he was very careful to select that kind of employment which would in no way seem a matter of impropriety. He has a job which has nothing to do with the services. It is all in the other end of the company.

The question which has come up and was queried, why did he leave the Navy on the 31st of July and accept employment on the 1st of August with McDonnell? He did that, sir, as a favor to me and to the Navy. He had done his time in the Navy. He was extended for 2 years. He was in his extension when he finally requested retirement when I came to take over the Bureau. There were three flag officers present at that time. Hatcher had retired, so there were only three of us. I asked him to stay on until the selection in July would tell me what flag officers I might have to staff with. He agreed to that, sir.

The flag officers I have now are Admiral Beardsley, Admiral Dixon, and Admiral Schoech, who is head of my research and development, and Admiral Pfingstag, who is head of my field activities.

He stayed on to the 11th hour. He stayed out of consideration to the Navy and in consideration of his duties to his country, although Mr. McDonnell was requesting him to join the company. I can testify he is a man of great integrity and he goes out of his way to make sure that there is no active impropriety on his part.

I have written him a letter about 3 weeks after he left. I thought he would be interested in how it was going with me in the Bureau of Aeronautics.

He has not replied. I felt hurt. When I approached him he said, "I can't correspond with you. You are now in a position of a Government agency which contracts with the company I work for." He won't even engage in personal correspondence with me, sir.

Mr. HOLIFIELD. I thank you for that statement, sir. We have looked over the biographies of the naval people who have been witnesses before us that was requested by Mr. Hoffman and they are notable and honorable careers in every sense of the term, and they will be printed as part of our record so that the American people can know that they have men of the caliber which have appeared before this committee in places of responsibility and as a mark of this committee's respect for the witnesses that have appeared here.

Admiral RUSSELL. Thank you, sir.

Mr. HOLIFIELD. May I ask you and the Secretary at this time—Mr. Seecretary, I see you have a piece of paper. Did you wish to say anything?

Mr. FOGLER. I would like to ask a question, Mr. Chairman, as to whether or not the biography of Secretary Smith had been received. If not, I would like to present it to the committee. I would just like to comment that he has had 29 years as a civilian pilot, 28 years as a military pilot.

In civilian life I was directly concerned with the inauguration of the first commercial trans-Atlantic flight, the first round-the-world passenger flight, and the development of airlines through Africa. The work involved not only development of the proper aircraft for the particular job but also the organization whereby aircraft could be kept operating far from its main base in almost any part of the world.

And this, I think, is very significant.

In military life I have been a Naval Reserve aviator and flew four or five hundred hours in combat squadrons during World War II.

This is Secretary Smith, who is Assistant Secretary of the Navy for Air.

Mr. HOLIFIELD. We will be glad to accept it, although he was not called as a witness.

Mr. FOGLER. He was not. But he is the chief aviation Secretary.

Mr. HOLIFIELD. I'm sorry. I understand he was in the room.

Mr. FOGLER. He could not be here today.

Mr. HOLIFIELD. I would have given him an opportunity to say anything he wished.

Before you leave the stand may I direct this question to you, Mr. Secretary Fogler, and Admiral Russell:

Have you been given fair opportunity to place into the record any fact which you wish to place in the record?

Mr. FOGLER. Mr. Chairman, I am happy indeed to state to you with emphasis that we have been given that opportunity very fully.

Mr. HOLIFIELD. Thank you.

You may remain if you will, please, until we finish. We will try to finish. In case something comes up that we wish to ask you a comment about.

Mr. McDonnell, will you and Mr. Little come forward for a few questions?

Mr. McDONNELL. While my associates are taking their seats I wonder if I might say a brief word to the same subject that Admiral Russell last spoke to.

Mr. HOLIFIELD. You may proceed.

Mr. McDONNELL. I know that this committee and its chairman and its counsel and its investigators and the press want to and are trying to be very fair.

I would like to submit a little evidence of the net result, however, and it is illustrated by the Evening Star of last evening which——

Mr. HOLIFIELD. Mr. McDonnell, we have all seen the papers.

If you have some pertinent testimony on this subject you give it.

Mr. McDONNELL. I have it right here. I wish to submit it to the committee. The sentence here states:

Admiral admits fight against voiding United States contracts.

I know you know it is an error. Overnight I have gotten an analysis by our boys in St. Louis working overnight of a list of 8 terminations of contracts during the period from September 1952 through July 1955 when Lloyd Harrison was Deputy Chief of the Bureau of Aeronautics. They total approximately $217 million. That is the evidence I wish to supply to the committee and to the press.

Mr. HOLIFIELD. We would like to have that additional information. The record will show that Admiral Harrison testified as Acting Chief of the Bureau his signature appeared on documents of termination during the year 1954 so there is no use in going over the ground again. But we will be glad to accept that. The reporter will file it.

(The document referred to is as follows:)

Termination of contracts during the period September 1952 through July 1955 when Rear Adm. Lloyd Harrison, U. S. Navy (retired), was Deputy Chief, Bureau of Aeronautics

Product and contract	Note and termination authority	Approximate estimated contract value	Approximate estimated termination cost
XHRH (NOas 51-1201).	Complete termination: Contracting officer TWX 092030Z September 1953.	.....	.....
	Reinstated rotor development for XHCH-1: Contracting officer TWX 142130Z October 1953.	.....	.....
	Final termination: BuAer letter CT-256/347 NOas 51-1201 letter of intent (TN-3) May 21, 1954.	$18,000,000	$2,500,000
XHCH (NOas 52-947).	Partial termination to delete 3d flight article: Contracting officer TWX 061926Z March 1953.	1,500,000	Nil
	Eliminate static test article, static test program, and 1 flight article: Contracting officer letter CT-254/602/TN-2 July 27, 1954.	2,000,000	1,000
F3H (NOas 53-204)...	Reduce number from 378 to 130 and delete F3H-2P: Contracting officer TWX 172117Z November 1954.	200,000,000	4,128,000
	Eliminate 2 naval air maintenance trainers: Terminate amendment 5. BuAer letter CT-253/90/TN-3 Jan 21, 1955.	800,000	160,000
	Eliminate item 6 of letter of intent 53-204 which provided for liaison with Temco under licensee—licensor agreement: Amendment 7 to letter of intent Sept. 25, 1953.	2,000,000	Nil
	Total	222,300,000	6,789,000
	Total approximate net saving to Government by virtue of above terminations.	217,000,000	

Mr. HOLIFIELD. Now you are ready for questions, sir?

Mr. McDONNELL. Yes, sir.

Mr. BALWAN. I want to direct a question to Mr. Little. Mr. Little,

will you state what your position is with McDonnell Aircraft Corp.?

Mr. LITTLE. I am chief test pilot for McDonnell Aircraft Corp.

Mr. BALWAN. How long have you been with McDonnell?

Mr. LITTLE. About 7½ years.

Mr. BALWAN. Always in that capacity as chief test pilot?

Mr. LITTLE. No, sir. I was made chief test pilot 2 years ago.

Mr. BALWAN. And how large a staff do you have?

Mr. LITTLE. We have 14 pilots at the present time.

Mr. BALWAN. And who supervises that staff? Do you supervise that staff?

Mr. LITTLE. Yes, sir.

Mr. BALWAN. You have been with McDonnell throughout the development of the F3H plane program?

Mr. LITTLE. Yes, sir.

Mr. BALDWIN. Have you flown the F3H plane?

Mr. LITTLE. Yes, sir.

Mr. BALWAN. With what engines?

Mr. LITTLE. Both the J40 and J71.

Mr. BALWAN. And what versions of the J40?

Mr. LITTLE. All versions, -6, -8, -22.

Mr. BALWAN. Have your associates or colleagues, other test pilots, flown this plane also?

Mr. LITTLE. Yes, sir.

Mr. BALWAN. And the -40 and -71?

Mr. LITTLE. Yes, sir.

Mr. BALWAN. The subcommittee is well aware that the task that you people as test pilots have is a very hazardous one, and I would like to know from you how many fatalities your crew of test pilots had experienced?

Mr. LITTLE. Since I have been——

Mr. BALWAN. On the F3H program.

Mr. LITTLE. On the F3H, three.

Mr. BALWAN. Has this had any effect on the morale of your test pilots?

Mr. LITTLE. Yes, sir.

Mr. BALWAN. When the subcommittee investigators visited the McDonnell Corp. plants, did they discuss at all the morale situation of your test pilots?

Mr. LITTLE. It was mentioned, sir.

Mr. BALWAN. Can you tell the subcommittee what you told them?

Mr. LITTLE. Well, our pilots were flying 3 different airplanes and 3 different engines. I think I would sum it up by saying we preferred testing engines other than the J40.

We had experience with better engines and we preferred to test them.

Mr. BALWAN. Mr. Chairman, I would like to ask Mr. Morgan if he has any questions since he is the person who talked with Mr. Little at the plant?

Mr. HOLIFIELD. You may proceed briefly, Mr. Morgan.

Mr. MORGAN. I wanted to make sure I didn't misquote you in my testimony on Monday, in which I believe I stated that it was your feeling that the pilots might have or would have refused to fly the airplane after July 7, after the July 7 accidents in which Mr. Sewell

was killed, if they had not been grounded. Am I quoting you right there or not?

Mr. LITTLE. I didn't intend to leave such a strong impression with you on that subject.

Mr. MORGAN. I don't want the record to show that you said that if you did not. I wanted it to be a fair statement as related by me. I don't want to put words in your mouth.

Mr. LITTLE. I would rather word that that we preferred flying the other engines. There was no doubt about that. I don't really believe that any of our pilots would have terminated their employment with the company were we asked to continue flying the J40.

Mr. BALWAN. Mr. Chairman, I think the witness has been very responsive and very fair. They have a very dangerous job. The comments he made are very natural ones for the test pilot to make. They are taking their lives in their hands. I don't mean to infer any more on the J40 engine. I thought we had one test pilot who had testified on the Navy side and we should have testimony of the manufacturer.

Mr. HOLIFIELD. I think it is fair testimony and I think the witness has been responsive.

Is there any further question?

Mr. BALWAN. We have no more questions for Mr. Little.

Mr. HOLIFIELD. Mr. McDonnell, Mr. Balwan will direct a few questions to you.

Mr. BALWAN. The first question we have, Mr. McDonnell, is concerning the letters from the McDonnell Corp. in response to the letter of October 8, 1954, which you received from BAR, St. Louis—I think Captain Murphy—and a reply to your letter which you received from BAR on June 27, 1955. We discussed these letters which you received from the Bureau of Aeronautics representatives and we discussed your reply, I think, but we never had presented for the record those replies.

(Letters referred to are as follows:)

OCTOBER 15, 1954.

From: McDonnell Aircraft Corp.
To: Bureau of Aeronautics representative, McDonnell Aircraft Corp., Post Office Box 516, St. Louis 3, Mo.
Subject: Contract NOa (s) 51-640i, damage to Government-furnished property.
References:

(*a*) BAR letter L8-7/C51-640i, CHSM: pr, serial 16997, dated October 8, 1954.
(*b*) MAC letter BAR-210-42831, BSB: jes, dated September 23, 1954.

1. Reference (*a*) advised the contractor that BAR, St. Louis, considers the contractor to be liable for damages sustained by two J40-WE-22A engines (serial Nos. 302526 and 302525) on September 8 and 9, 1954, "by virtue of lack of good faith on the part of contractor management."

2. The contractor has carefully reviewed the facts pertaining to the two incidents of damage, and the precautionary measures in effect before and after such damage; and these facts lead to only one conclusion, namely, that there was no lack of good faith at any level of the contractor's organization. While the contractor is in complete agreement with the BAR's concern about damage to J40 engines due to foreign objects, the contractor firmly believes that reasonable corrective action has been taken in each case where the need for such action appeared.

3. Unfortunately, the very nature of modern jet engine operation, which depends upon suction of high velocity air through the engine, presents serious operational difficulties. The contractor has had appreciable previous experience with the problem since foreign object damage was encountered in early

J34 engine installations in F2H series aircraft, and is a source of considerable concern in fleet operations today.

4. From the very beginning of the contractor's operations with jet engines, the contractor has initiated and maintained precautionary measures to preclude to the maximum extent possible any damage due to foreign objects, and considers that it has exceeded the requirements of sound industrial practice in this respect. For example, the following measures, among others, have been constantly in effect at the contractor's plant for several years:

(*a*) Visual inspection of the engine ducts by the contractor's inspection personnel prior to each engine runup whether in an airplane or on a test stand. Such inspection has also been made by a production leadman of the contractor for about 6 months, and by a Navy inspector for about 3 months, so that at the time of the damage referred to in reference (*a*) such inspection was being made by at least 3 persons, including Navy personnel.

(*b*) Constant policing of the engine runup area, including daily mechanical sweeping.

(*c*) Operation of engines by qualified, BAR-approved personnel only.

5. The contractor has and is continuing to improve its methods with respect to preventing damage whenever new techniques have been devised by the contractor or brought to the contractor's attention. It must be remembered that this subject is not static and is constantly changing almost to the same degree as the state of the art of the engine itself. In fact, in most cases of damage to engines, the specific cause has not been determined; and it is of course difficult to devise precautionary measures to prevent accidents the cause of which is not known. Further, the contractor believes that its experience with respect to engine damage is no worse than industry experience in general, or of Navy and Air Force operational experience, and if the BAR knows of any precautionary steps taken by other companies, or by the Navy or the Air Force, which can improve the situation, the contractor will welcome such suggestions.

6. Specifically, the inspection procedures prior to damage of engine No. 30256 on September 8 are a case in point. Inspection of this engine and of the air ducts had been made by the McDonnell Aircraft Corp. inspector, by the Navy inspector, and by the contractor's experimental superintendent, both before and after three successive engine runs. It was following these three runs that inspection of the engine revealed small dents and scratches in the engine, presumably caused by a foreign object. It is difficult to see how the contractor can be charged with lack of good faith when it went far beyond good industrial practice and had the experimental superintendent personally make the inspections. While this is only part of the procedure for preventing damage to engines, it is an indication of the management's concern with this problem.

7. When it became apparent to the contractor and the BAR that the precautionary measures in effect on September 8 and 9 were not completely eliminating damage to the engines (and such complete elimination is probably impossible), the contractor sent a copy of its principal procedures on this subject to the BAR by reference (*b*), and invited the BAR's recommendations for additional specific precautionary measures. As a matter of interest, the contractor considers that some of the precautionary measures currently in force or under consideration may not be necessary, but has nevertheless instituted these measures in order to provide every possible safeguard, particularly in this problem area where the causes of damage are not known. For example, the contractor is expending $6,000 for special floodlighting of the ramp area, which may not be necessary in view of the fact that the contractor has in the past handled hundreds of jet engines per month, including extensive night operations, without significant engine damage and without such special floodlighting. Nevertheless, the contractor has gone to this expense in the hope that it may help the situation, although there is probably no real basis for this hope.

8. It should also be pointed out that this matter of damage to engines has always received the highest possible attention by the contractor, including the last 3 or 4 weeks when it has been of such particular concern to the BAR. Nevertheless, in spite of this attention and all the precautionary measures being taken, additional engine damage continues to be discovered, specifically on October 12, 13, and 14, 1954. Further, it has recently been found that some engines have, at the time of delivery by the engine manufacturer, contained damage, similar to the type of damage that has been discovered after running engines at the contractor's plant; and this is in spite of inspection before shipment to the contractor. Fundamentaly, the contractor firmly believes that damage to engines

exists or occurs in spite of all precautionary measures, and has never been due to lack of good faith on the part of anyone connected with the contractor.

9. Attention is also directed to the fact that in the majority of instances of damaged engines, the damage has been of an extremely minor nature. The meticulously close observation of the J40 engine has resulted in the discovery of minute damage, removal of engines from aircraft, disassembly and repair of engines which, in normal operation such as squadron use, would never be discovered.

10. The dollars involved in the two incidents alleged by the BAR to constitute lack of good faith are of no significance to the contractor in the consideration of this problem. However, the principle involved is of paramount importance, and it is for this reason that the contractor feels compelled to take a strong stand in refuting the charge made by the BAR.

11. The contractor reiterates its desire to assure BAR, St. Louis, that the subject problem is considered of prime importance to the contractor and to pledge its continued vigilance and determination to minimize the recurrence of damage to engines due to foreign objects.

McDONNELL AIRCRAFT CORP.,
ROBERT H. CHARLES,
Executive Vice President.

NAVY DEPARTMENT, BUREAU OF AERONAUTICS REPRESENTATIVE,
St. Louis 3, Mo., October 29, 1954.

From: Bureau of Aeronautics Representative, St. Louis, Mo.
To: McDonnell Aircraft Corp.
Subject: Contract NOa(s)–51–640i, liability for damage to Government-furnished property.
Reference:
(*a*) BAR, St. Louis, letter, serial 16997, of October 8, 1954.
(*b*) McDonnell Aircraft Corp., letter, BAR–05–86 of October 15, 1954.

1. In view of the strong adamant position taken by the contractor in reference (*b*), and his flat disclaimer of any lack of good faith at any level, the Bureau of Aeronautics representative is constrained ruefuly to withdraw his finding contained in reference (*a*), and will take no further action in the matter. In abandoning his previous finding the BAR is inferring no change in his own opinion, but is convinced that the intangible nature of many of the factors nvolved is such that, again in view of the contractor's expressed position, the record would not sustain a finding of contractor liability. Happily, the contractor can now be assured that his reputation in the singular legal field referred to in paragraph 5 of reference (*a*) is now firmly established.

C. H. S. MURPHY.

JULY 29, 1955.

From: McDonnell Aircraft Corp.
To: Bureau of Aeronautics representative, McDonnell Aircraft Corp., Post Office Box 516, St. Louis 3, Mo.
Subject: Damage to Government-furnished equipment by McDonnell Aircraft Corp. personnel.
Reference:
(*a*) BAR, St. Louis, letter serial 16997, dated October 8, 1954.
(*b*) BAR, St. Louis, letter serial 11149, dated June 27, 1955.
(*c*) SD459–1A, detail specification for model F3H–1N airplane.
(*d*) SD459–2, detail specification for model F3H–2N airplane.
(*e*) Defective equipment record, MAC form 1575 (revised June 19, 1953).
(*f*) Report of gas turbine engine damaged by foreign objects, MAC form 1656.

1. Damage to Government-furnished equipment, particularly to engines due to passage of foreign objects, has been a matter of serious concern to the contractor for some time. Specific attention has been given to engine-operating procedures, cleanliness of such areas, provision of suitable guards and screens, prerun and postrun inspection of ducts and faces of engines, and provision of adequate operating facilities. Following receipt of reference (*a*), the contractor's quality control manager made a personal survey of five airframe facilities for the specific purpose of investigating additional engine damage preventative measures in use in the industry.

2. On June 23, 1955, the contractor appointed an engine damage investigation committee composed of qualified representatives of the F3H and the F101 projects, flight test engineering, quality control and manufacturing. The primary task assigned this committee was the detailed observation and investigation of the engine handling and operating procedures in use by the contractor, together with investigation of the F3H and F101 aircraft, to determine possible conditions leading to damage to engines. This committee submitted a number of recommendations which have resulted in the following:

(*a*) More detailed inspection procedures relative to cleanliness checks have been placed in use.

(*b*) The inside walls of engine air induction system ducts on all model aircraft are required to be painted white to improve inspection visibility.

(*c*) Canopies will remain closed after flight until aircraft returns to the ramp and duct screens are installed or the engine shut down. This action has been taken to preclude the possibility of any loose object falling from the canopy deck into the airstream entering the engine air induction system. A deviation from this procedure may have to be made during the hot summer months.

(*d*) Process specification P. S. 20039, detailing engine handling and operating precautions from the point of removal from shipping container to flyaway, has been prepared. Implementation of this process specification will be rigidly enforced.

(*e*) Engine compressor blade and inlet air duct inspection checklists have been revised to specify the inspection vantage point and the mandatory use of a high-intensity light.

(*f*) Duct guards and screens have been carefully inspected, and reworked where necessary, to insure the best practical fit of such devices to the aircraft.

3. Additional recommendations of the Engine Damage Investigation Committee are currently under investigation and study. These recommendations include:

(*a*) Aircraft design studies relative to the elimination of screws in engine ducts and possible screen protection of certain openings.

(*b*) Reevaluation of present duct plug design relative to improved fit and reduction in quantity of removable hardware.

(*c*) Additional publicity, in the form of placards, signboards, posters, etc., relative to the exercise of necessary precautions.

(*d*) Study of the practicability of reduction of engine ground running time.

4. Paragraph 6 of reference (*b*) indicates that the rate of damage to engines has increased markedly in recent months. The following data are submitted relative to engine damage by passage of foreign objects from December 1, 1954, through June 30, 1955:

Month	Total engine operating hours	Engines damaged by passage of foreign objects	Total engine operating hours per engine damaged	Engines returned for overhaul	Total engine operating hours per engine returned for overhaul	Engines damaged, by type		
						J40	J71	J57
December	420.1	4	105.0	0	------	3	1	------
January	493.3	6	82.2	1	493.3	5	------	1
February	145.9	6	24.3	3	48.6	3	1	2
March	181.2	2	90.6	1	181.2	1	------	1
April	253.1	2	126.1	2	126.5	------	------	2
May	284.7	1	284.7	1	284.7	------	1	------
June	630.7	5	126.1	4	156.2	1	------	4
Total	2,412.0	26	92.8	12	201.0	13	3	10

Attention is directed to the fact that the contractor was making steady progress toward the objective of increased total accumulated engine operating hours per damaged engine until the month of June 1955. The following graphic analysis more clearly illustrates this point.

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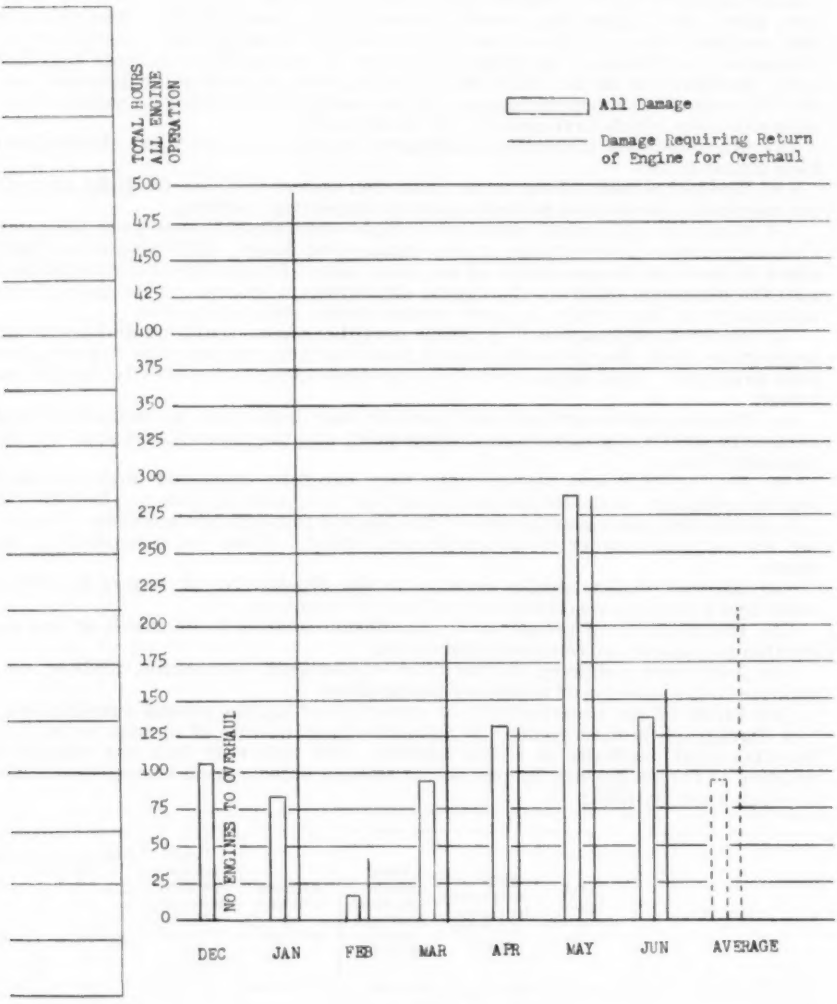

Attention is further directed to the fact that comparatively minor damage to a J–57 engine requires return for overhaul due to the lack of split compressor case provisions in this engine. Absence of an approved Allison local repair procedure likewise necessitates return for overhaul of slightly damaged J–71 engines.

5. Damage inflicted upon engines while using such handling devices as winches and loading dollies has occurred in a limited number of incidences. Design improvements have been effected in the winches used for installations of engines in the F3H-type aircraft. Further design studies are underway to incorporate "dead-man brake" features in this equipment.

6. Paragraph 7 of reference (*b*) states that 5,000-pound engines have been handled on bomb dollies having a 2,000-pound lifting capacity. Paragraph 2317a of reference (*c*) specifies an M–22 bomb truck for this purpose. Paragraph 2317a of reference (*d*) states that equipment shall be as approved for the prototype airplane, for which the M–22 bomb truck was approved. The contractor uses M–22 bomb trucks only for the installation and removal of engines in F3H air-

craft. Although M–22 bomb trucks are generally to handle 2,000-pound bombs, Ordnance Drawing No. E–8503 states that such trucks possess a 5,000-pound capacity. Conversations with the chief engineer of the Weaver Manufacturing Co., designers and manufacturers of this bomb truck, indicate that static tests of the bomb truck failed at 8,200 pounds loading. Since the J–40 engine weighs 4,600 pounds and the J–71 weighs 5,384 pounds, the contractor believes the M–22 bomb truck is structurally satisfactory for installing and removing J–40 and J–71 engines. However, further studies are now being made of this matter.

7. One engine was damaged while lowering the cradle of the M–22 bomb truck. Investigation of that accident has revealed that the control for the hydraulic system, used for elevation and retraction of the cradle, was not sufficiently sensitive for accurate lowering control. The operator was unable to stop the descent of the cradle before the engine came to rest on other parts of the bomb truck. The contractor has perfected and installed a modification of this equipment which provides needle-valve adjustment plus fixed mechanical stops limiting retraction of the cradle at a point prohibiting engine contact with any part of the bomb truck.

8. Paragraph 8 of reference (*b*) indicates that the contractor has not properly informed the contracting officer of loss, destruction, or damage to Government furnished property, as required by Armed Services Procurement Regulation, appendix B, section 402.2 (a). The contractor has for years notified the BAR of damage to Government furnished property by the reference (*e*) report. In such cases involving engine damage by passage of foreign objects the reference (*f*) report has been processed in addition to reference (*e*). Reference (*b*) has been the first indication that this method of notification was inadequate. In the future, the reference (*e*) and (*f*) forms will be signed by the contractor's quality control manager or chief inspector. It is hoped that the reference (*e*) form will then be acceptable as a satisfactory form of notification of damage to GFE. Further, the contractor's quality control function will tabulate all future Government furnished property damaged incidents for the purposes of improved control.

9. The contractor wishes to assure BAR, St. Louis, that there will be no relaxation in the efforts to prevent damage to Government-furnished property with particular reference to engines damaged by passage of foreign objects. Efforts of all responsible contractor personnel will continue to be exerted in this cause. The Engine Damage Investigation Committee will specifically continue their work.

10. Further, the contractor is pleased to report that, from July 1 through July 27, 674.6 hours of total engine operation were accumulated with no damage due to passage of foreign objects. This constitutes a substantial improvement over the 7-month average reported in paragraph 4 above, during which 1 engine was damaged each 92.8 hours of engine operation.

McDONNELL AIRCRAFT CORP.,
ROBERT H. CHARLES,
Executive Vice President.

May we have those?

Mr. MCDONNELL. I would like to ask Mr. Murray or Mr. Moore, whichever has them, to place those in the record.

Can they be made available, Earle?

Mr. MOORE. I believe these copies can be made available.

Mr. MCDONNELL. We have other copies at the plant. Let's place these in the record now. To whom shall we hand them?

Mr. BALWAN. I think we can submit those sometime this morning, or you can mail those to us.

Mr. MCDONNELL. We will hand them in a little later then.

Mr. BALWAN. We would also like to have the letter referred to yesterday which was a correspondence between McDonnell and Captain Murphy in which Captain Murphy testified he withdrew some of the language in his October 8 letter.

Mr. MCDONNELL. We will place that one in the file also as soon as we leave the witness stand.

Mr. BALWAN. I have a general question here now about the FIRM program which was discussed last Tuesday and also today. Do you believe that the fly-before-you-buy program which has been discussed here is the best way for the United States to keep its aircraft superiority?

Mr. MCDONNELL. I missed one word, Mr. Balwan. The which program?

Mr. BALWAN. The fly-before-you-buy or this FIRM program.

Mr. MCDONNELL. Very good. The FIRM program. I think that is a very good program, as the basic centerline. In times of war it should be speeded up in my humble judgment. In times of more encouraging peace, why it can be slowed down some. But as a basic center-of-the-road policy, I think it is good.

Mr. BALWAN. Has it changed in any way your dealings with the Navy in the method by which the Navy is buying aircraft from you?

Mr. MCDONNELL. Yes, sir.

Mr. BALWAN. Will you explain it?

Mr. MCDONNELL. In the following way. It is illustrated, oh, I might say the old-fashioned way, the Navy would contract with the manufacturer for, say, two experimental fighters. If it were a fighter of medium size, the first one would fly in 1 year. Correction, in about 2 years. Then those 2 airplanes would be on flight test for about 1 additional year shaking out the bugs and being evaluated before the Navy would place a production contract. So there we have a total of 3 years. Then the first production airplane would fly about 2 years later. There is a total of 5 years. Then it would be about 2 years after that, or a total of 7 years, before enough combat-ready fighters of this medium size, I am discussing, would be in the fleet in sufficient quantity to really affect a combat situation. As compared to that, the FIRM plan on the average I believe will cut that lengthy 7-year period down to about 5 years. For each type of aircraft, that time period will be somewhat different.

Mr. BALWAN. Does FIRM contemplate changing the method by which the contractor buys engines or gets engines?

Mr. MCDONNELL. As our company has experienced it to date, the method of engine procurement has not yet changed as regards our company.

Mr. BALWAN. The discussion of this committee for the past 4 days has revolved around the difficulties of getting an engine, and would the FIRM program have changed this in your estimation since you have no control over the engine program?

Mr. MCDONNELL. There it could or it could not depending upon how the Government administered it in the particular case with a given manufacturer. For instance, I understand already that the Government has contracted with at least one airframe manufacturer so that the airframe manufacturer took the responsibility for both the airframe and the engine, and the engine was procured by the airframe manufacturer from the engine manufacturer.

Mr. BALWAN. Has it given you any more control? Has the FIRM program given you any more control over your ability to produce a plane and minimize some of the experiences you have had in this program?

Mr. MCDONNELL. If you take into account not only the airframe but all of what has previously been called Government-furnished

equipment in the way of radar, fire-control system, radio, and hundreds of other items, then the answer to your question is "yes." Under our latest contract, our company does have more control over the situation than we have had under previous contracts with the Navy.

Mr. BALWAN. How about a control over a repeat of our experiences that we have discussed here?

Mr. MCDONNELL. The situation you are referring to, I believe, is the sum total over the past 7 years of the XF3H procurement, the F3H1 and the F3H2 and the J40 engine and the J71 engine and all the other equipment to make the airplane ready for combat.

On that all-exclusive basis I would say our company has more control over its latest contract, and if these latest contract methods had been applied from the start, beginning in 1948, it would have been helpful in the F3H overall program.

Mr. BALWAN. I don't think the witness has been responsive to the question I had. The question I had was, does he have any more control as an industrialist or manufacturer in preventing the recurrence of a similar situation, namely, with the F3H program as it was concerned with the difficulties that he encountered with the J40 engine?

Mr. HOLIFIELD. I thought the witness had been responsive. If there is a point you want clarified, phrase your question a little differently.

Mr. MCDONNELL. I believe maybe I can help. If I have understood Mr. Balwan's question right, the simple answer is "Yes," sir. I was trying to give a more illuminating and lucid explanation so that all could understand it.

Mr. HOLIFIELD. You did confine yourself to your experience which was in the radar. You were given additional authority in the radar field and some other minor fields, but if there was a lack of responsiveness, it would be that you had not as yet been given control over the purchase of engines in any of your contracts?

Mr. MCDONNELL. That is correct.

Mr. HOLIFIELD. And therefore you would not have any control over a recurrence of the J40 episode if that area was excluded from your control?

Mr. MCDONNELL. Obviously if our company had no control over the engine procurement as regards that part of the program we would have no more control than we had in the case of the F3H program.

Mr. HOLIFIELD. Does that clear it up?

Mr. BALWAN. That clears it up very well.

Has McDonnell Corp. been requested to submit any presentations on procurement programs, aircraft procurement programs by the Department of Defense?

Mr. MCDONNELL. If I understand the question right, Mr. Balwan wants to know whether our company has been asked for its constructive suggestions as to how to improve the procurement system.

Mr. BALWAN. Yes, sir.

Mr. MCDONNELL. Yes, sir; we have.

Mr. BALWAN. Is this the Robertson committee?

Mr. MCDONNELL. The specific item to which I referred was a letter from the Chief of the Bureau of Aeronautics about a month ago which our company is now working on. The Chief of the Bureau of Aeronautics asked for constructive suggestions.

Mr. BALWAN. You have been requested for any constructive suggestions by the Department of Defense, the Office of the Secretary of Defense.

Mr. MCDONNELL. I will have to refer to staff on that.

Mr. MURRAY. The answer is "No," sir.

Mr. MCDONNELL. The answer is "No," sir; not to our knowledge.

Mr. BALWAN. Have you delegated anyone to represent you in the development of the presentation with the Bureau of Aeronautics?

Mr. MCDONNELL. Could you repeat the question, please?

Mr. BALWAN. Have you delegated anyone to represent you at the Bureau of Aeronautics in making such a presentation?

Mr. MCDONNELL. When our presentation has been fully prepared and we consider it a constructive opportunity to which we should give good detailed thought, when it is ready it may be presented directly by me to the Chief of the Bureau of Aeronautics or I may delegate any one of several people in our company to do it.

Mr. BALWAN. As of this time you have not delegated anyone to represent you at the Bureau of Aeronautics.

Mr. MCDONNELL. I don't quite understand the question. Does Mr. Balwan wish to know whether we station an employee in the Navy Building?

Mr. BALWAN. No. The question I am driving at, Mr. Chairman, is that the Bureau of Aeronautics has requested McDonnell's judgment on improving procurement policies in buying airplanes. I want to know if they have delegated someone in McDonnell Corp. to work with the Bureau on that. I presume it might be one of its vice presidents or it might be one of the other staff.

Mr. MCDONNELL. The question is now very clear. We have wished to go into this in considerable detail. It is being worked on in St. Louis. Our written presentation is not yet ready.

Mr. BALWAN. Mr. Chairman, while I do not wish to ask for the presentation which they will give to the Bureau of Aeronautics, I think it would be helpful for the record if this manufacturer would supply the subcommittee with some of his judgment which may not be the identical document which he gives to the Bureau of Aeronautics.

Mr. MCDONNELL. We will be very glad to do that, sir.

(The material referred to was not available at the time the hearings were sent to press.)

Mr. ROBACK. Mr. McDonnell, you made a statement yesterday, I believe, with regard to backfitting those 51 airplanes. Is there any reason that you have or any information that you have indicating the engineering-economic problems in making those backfittings? We have information from the Navy which would indicate that at least for the first half of that run the problems would be too difficult or too costly.

Mr. MCDONNELL. Our company is in complete agreement with the Navy as to the disposition of those airplanes. On the other hand, purely as an engineering and manufacturing matter our company can at any time ordered by the Government, we can put J71 engines in every one of 51 airplanes. They are now remaining in existence 54 airplanes. On 51 of them we can install J71 engines by a certain amount of reworking and modification.

Mr. ROBACK. Are there any particular problems of backfitting with respect to some as compared to others?

Mr. MCDONNELL. Yes, sir.

Mr. ROBACK. What are they?

Mr. MCDONNELL. The remnant of the first 30 airplanes, the remnant is now 25 airplanes still in existence. Backfitting them will be more difficult than as regards the remnant from the second 30 airplanes which now stands at 26 airplanes. That last 26 have certain provisions already built into them by Navy orders of a long time ago whereby the J71's can more readily be put in them.

Mr. ROBACK. You heard certain cost estimates concerning the backfitting. Were those based upon information which you supplied to the Bureau?

Mr. MCDONNELL. Yes, sir; of that.

Mr. MCDONNELL. I will call on Mr. Murray to answer that one.

Mr. MURRAY. I can't say, sir.

Mr. ROBACK. Have you any——

Mr. MCDONNELL. Could I illustrate that. I believe what Mr. Murray meant was that we are supplying all kinds of engineering and cost figures to the Navy, both at their St. Louis office and in Washington all the time. We never know just exactly what use they make of them as regards a particular end result. They may prefer to use some figures there on that that their own able staff have worked up or they may use ours or they may work out a combination of the two in trying in their judgment to arrive at the truth.

Mr. ROBACK. As far as you know, these estimates were arrived at independently by the Navy?

Mr. MCDONNELL. We can't say. The answer to that is the same as the answer to the previous question. We feel that we have found in general that the Navy always gives reasonable consideration to our estimates.

Mr. ROBACK. Are you doing any maintenance or preservation work on the frames and engines at the plant? I am talking about those that are at your plant.

Mr. MCDONNELL. I didn't get the question.

Mr. ROBACK. Regarding those airplanes that are now at your plant, are you doing any preservation or maintenance work?

Mr. MCDONNELL. I would like one of my staff to answer that.

Mr. MURRAY. We are required to do certain routine maintenance, as differentiated from operational maintenance.

Mr. ROBACK. What are the bases for the charges?

Mr. MURRAY. Our inspection function is a matter of overhead cost and since the work being done on these airplanes—it is not work, it is actual inspection—is a matter of overhead, the cost is spread through our overhead.

Mr. ROBACK. You have no specific estimate of maintenance cost with regard to that parteiular group?

Mr. MURRAY. No, sir; we do not have any readily available.

Mr. ROBACK. Do you have any instructions as to the ultimate disposition of those planes?

Mr. MURRAY. We have been instructed to dispose of 21 of the first 30 airplanes.

Mr. ROBACK. To dispose—what do you mean by that?

Mr. MURRAY. To deliver them to the Navy.

Mr. LIPSCOMB. You mentioned 54 planes total, Mr. McDonnell.

Mr. MCDONNELL. Yes, sir.

Mr. LIPSCOMB. Where are the 54?

Mr. McDONNELL. I will call on Mr. Murray to answer that.

Mr. MURRAY. For that location, 4 are at Patuxent, in Navy installations; 1 is in California, and the remainder are at our plant.

Mr. LIPSCOMB. Are they on your ramp?

Mr. MURRAY. Some of those are on the ramp. Some of those that have the J–71 installed are in use.

Mr. McDONNELL. I might add to that that four of them do have the J–71 engine installed and quite a lot of flying is being done with them.

Mr. LIPSCOMB. How many are on the ramp?

Mr. McDONNELL. Mr. Murray?

Mr. MURRAY. I believe approximately 47.

Mr. LIPSCOMB. How many of those have engines in them?

Mr. MURRAY. I believe 11.

Mr. LIPSCOMB. Whose property are those 47 planes?

Mr. MURRAY. Navy.

Mr. LIPSCOMB. Before the Navy accepts an engine they require 150 hours of testing. What does the Navy require prior to accepting the airplane?

Mr. MURRAY. The Navy has certain performance specification requirements which must be met on all the early models. It is a lengthy and rather complicated list of specifications, all of them dealing, of course, with flight performance. For a routine production acceptance, that is, after the airplane has proven itself to the satisfaction of the Navy, each airplane is flown by our test pilots and is then flown by Navy test pilots for at least an hour and a half, and all squawks, as we call them, any minor complaints, that they have against the detail operations of the airplane are corrected before the airplane is then flown away by the Navy.

Mr. LIPSCOMB. Have all 47 of these planes had these performance tests taken?

Mr. MURRAY No, sir.

Mr. LIPSCOMB. How is it the Navy can accept delivery of these planes without the performance test?

Mr. MURRAY. Under the terms of supply contracts, when Government-furnished equipment is not available in sufficient time to allow you to meet your performance tests the customer—I am saying the customer, because this applies to the Air Force as well as the Navy—will accept those airplanes through a means called provisional acceptance as a matter of routine contract operation.

Mr. McDONNELL. I might add, Mr. Lipscomb, that 23 of these 60 airplanes have flown.

Mr. LIPSCOMB. How many of the 47 have flown?

Mr. MURRAY. I am speculating a little. I would say about 19.

Mr. LIPSCOMB. Some of them have had engines in them and then the engines were taken out. You only have engines in 11 now.

Mr. MURRAY. That's right.

Mr. LIPSCOMB. Some of these planes that are sitting on the ramp, how many have had the performance test and how many have had just the provisional acceptance?

Mr. MURRAY. Offhand I can't answer that, Mr. Lipscomb. We would have to search our detailed inspection records and give you an airplane-by-airplane accounting of that.

Mr. McDONNELL. We can give you that tomorrow if you still desire.

Mr. LIPSCOMB. This provisional acceptance has just been followed through because you have not had engines and the contract has been terminated.

Mr. MURRAY. No, sir; the contract has not been terminated. Provisional acceptance is given as the airplanes are completed at the end of the production line. If there is no engine to install in the airplane——

Mr. LIPSCOMB. Is this a usual procedure?

Mr. MURRAY. Provisional acceptance is a very usual procedure. It is a customary procedure.

Mr. LIPSCOMB. So it is possible that the services accept planes that have not been flight tested?

Mr. MURRAY. No, sir; I did not mean that. The provisional acceptance is given even for airplanes that are flight tested until the Government has fully satisfied themselves that the performance and all the details of operation are completely satisfactory, a period which may take 2 years or more after first delivery of the airplane.

Mr. LIPSCOMB. Does title pass before or after the provisional acceptance?

Mr. MURRAY. Title is in the Government, vested in the Government at the time of making of progress payments, so title is in the Government at the time that the airplane is turned over to them.

Mr. LIPSCOMB. These particular planes may never be flown and therefore we will never know how well the contractor performed on these provisional acceptance planes?

Mr. MURRAY. Well, we have demonstrated that the F3H–1 with the engine that was provided met the requirements that could be expected of that airplane with that engine.

Mr. HOLIFIELD. Your point is I believe that these other airframes are duplicates of frames which have met the test.

Mr. MURRAY. Yes, sir. The BAR inspects each one to see that they conform to our model specifications.

Mr. HOLIFIELD. It is possible that structural defects might occur which would be shown only in flight and if that occurs, as I understand it, under the provisional acceptance arrangement, the Government could still come back and claim an adjustment. Is that right or is it wrong?

Mr. MURRAY. That's right.

Mr. ROBACK. Insofar as there is difference of opinion as to the cause of difficulties in flight, would that make a difference as to liability of the engine or the airframe manufacturer?

Mr. MURRAY. Would you repeat that question?

Mr. ROBACK. Is there any obligation on the part of the airplane manufacturer after a plane in flight has proved to be operationally unsatisfactory?

Mr. MURRAY. Yes, sir.

Mr. ROBACK. Are there cases or is it conceivable that once a plane in flight proves unsatisfactory that the airplane manufacturer has to be held liable or to make good or to repair the airplane?

Mr. MURRAY. We are obligated to correct under our contract clause entitled "Correction of defects."

Mr. ROBACK. So that a difference of opinion as between the airframe manufacturer and the engine manufacturer as to the cause of the flight difficulty would create a dispute as to the relative obligations of the two?

Mr. MURRAY. That application is a little unlikely. Generally the customer can allocate very accurately most problems needing correction.

Mr. ROBACK. Isn't it a fact that the reason the Navy owns these planes which have not been altogether operationally proven is due to the fact that the engines were not there? Mr. Lipscomb's point was that because the engines were not available, the Navy owns these planes and has never been able to find out whether you have performed in all respects as far as your obligation is concerned.

Mr. MURRAY. No, sir; as I indicated in replying to Mr. Lipscomb, we have flown the early versions of the F3H–1 extensively and with the limitations which the engine imposes upon the airplane, the airplane was considered to be satisfactory.

As Mr. McDonnell referred to yesterday, bugs which are in the airframe have been corrected. The BAR at the time of giving us provisional acceptance for completed airframes in which we are not installing an engine because of lack of availability carefully inspects those airplanes to meet specifications and see that any corrections that were necessary as a result of the early flying were corrected and so that the packing sheet so notes, which we have the obligation to do it.

Mr. ROBACK. Mr. Hoffman was concerned yesterday about the fact that the Navy accepts engines before they get into the air. In the same sense, does the Navy accept airplanes before they get into the air, and if there are operational difficulties, those are separate matters that also may or may not be adjusted with the manufacturer?

Mr. MURRAY. The Navy would not accept an airframe which did not get into the air until that airframe had first proven itself, and, secondly, as if in the case of the later F3H–1 there were no engines to put in them under the terms of contract they would provisionally accept them, they would not have accepted the early F3H–1's without putting them into the air.

Mr. ROBACK. I am not talking about the class of the airframe. Everyone of these airframes does not go into the air before acceptance; is that right?

Mr. MURRAY. The normal condition with engines being available is for each airplane to go into the air before acceptance. That is mandatory.

Mr. ROBACK. In this case a portion of the airplanes was accepted because there wasn't any way of getting them in the air.

Mr. MURRAY. They were accepted because they were completed on schedule. There was no engine to power the airframe into the air.

Mr. ROBACK. You had complied with the production delivery terms of your contract and your obligation thereby was ended, as far as the title to the property was concerned.

Mr. MURRAY. Our obligations had ended up to the point for which we could take further action.

Mr. LIPSCOMB. Is it much of a job to install an engine in an airframe?

Mr. MCDONNELL. Once——

Mr. LIPSCOMB. Time consuming and expensive?

Mr. MCDONNELL. Once an airframe has been suitably designed and appeared to take a given engine, then it is a relatively easy job in service to take out one engine and put in another engine. On a good design, it should be possible to do it in less than a half a day with a suitable crew on it of maybe 6 to 12 men.

Mr. LIPSCOMB. As I understand it, there were enough engines left on orders delivered to fit all 47 of these planes. Is that right?

Mr. MCDONNELL. I didn't make that statement.

Mr. MURRAY. There were not enough engines delivered to use for that purpose, that is true.

Mr. LIPSCOMB. There were not. I understood that the engines and the airplanes were matched.

Mr. MURRAY. I believe that is true, but all of the engines were not delivered to us.

Mr. LIPSCOMB. They are still coming in, aren't they?

Mr. MURRAY. J40's?

Mr. LIPSCOMB. Yes.

Mr. MURRAY. No, sir.

Mr. LIPSCOMB. J–40–22's are still not coming in?

Mr. MURRAY. No, sir.

Mr. LIPSCOMB. I just thought Westinghouse was just cleaning up. That there were 40's being delivered in a canceled condition.

Mr. MCDONNELL. All we can state, Mr. Lipscomb, is what has come into our plant.

Mr. LIPSCOMB. Where are those being delivered?

Mr. HOLIFIELD. Mr. Smith of Westinghouse, will you please answer that?

Mr. SMITH. We have delivered 67 of the 107 engines that have been completed. The remainder of them are still at our plant awaiting instructions as to where they are to be shipped.

Mr. HOLIFIELD. You have delivered them where?

Mr. SMITH. According to Navy instructions to various places, some of them have gone to depots, some to various shipping points, some of them having to go to McDonnell. The 67 have either gone to Navy destinations for spares or for the flying they are doing at Patuxent or at the west coast or they have gone to McDonnell. Some of them have been returned to us for overhaul after they were used. We have some of them in the plant now for overhaul.

Mr. LIPSCOMB. The fact they have not been delivered to the McDonnell people points up that they are not going to install any more than the 11 engines that are already installed in the 11 aircraft. Is that correct?

Mr. MCDONNELL. Could I ask Mr. Murray, have some of these J–40–22 engines been shipped to our company and have already been shipped elsewhere under instructions from the Navy or Westinghouse

Admiral RUSSELL. May I clear up the point?

Mr. HOLIFIELD. Admiral Russell?

Admiral RUSSELL. In many cases we don't want to have the engine put into the airframe for these reasons. A matter of preservation. If they will not be used right away they have to be maintained. It costs money to install the engine in the airframe. We would prefer then if these airplanes are to be stored to keep the engine in storage

cans, which is the normal storage for overseas shipment and the engine keeps in good shape. This is the reason why. I don't believe there has been any shortage of engines, as recently at least, to do the flying which was necessary.

Mr. SMITH. May I say a point on that. It may not be known to the committee but we were not in a position to ship engines according to schedule for the first portion of this year because of continuing labor trouble. We had some very serious trouble in our plants starting the fall of last year and continuing through the spring until finally a complete strike on the 12th of June which lasted until the 19th of August.

That is one of the reasons why there were not enough engines. They were in various stages of work in the plants. They could not be shipped on schedule for that reason.

Mr. HOLIFIELD. Thank you, Mr. Smith.

Mr. LIPSCOMB. One more question, Admiral Russell. Are any of these engines going to be declared excess or surplus?

Admiral RUSSELL. Not under our current plan, sir. We have uses for them.

Mr. LIPSCOMB. That's all.

Mr. HOLIFIELD. Mr. Garmatz?

Mr. GARMATZ. Mr. McDonnell stated yesterday that there were about 80 Government employees at your plant, is that correct?

Mr. MCDONNELL. Yes, sir, 84 or 5.

Mr. GARMATZ. Are they civilians or military?

What do they do? Do you have a list of their names or occupations?

Mr. MCDONNELL. I have no list with me. It would be very easy to supply it to the committee in the morning. The majority are civilian employees who are doing inspection throughout the plant, both of the parts in process and of the final airplanes. There is a small number of officers of the Navy reporting to the BAR.

Mr. GARMATZ. You can furnish us a list of who they are and what their particular jobs are and whether they are military or civilians?

Mr. MCDONNELL. I believe between our group we can guess very closely.

Admiral RUSSELL. The senior man is in the room.

Mr. MCDONNELL. The BAR is here. He can give you an exact estimate.

Captain SAGER. The Government employees' list is in the BAR's office. I can furnish you with a list of every person there and what they do.

Mr. GARMATZ. Whether military or civilian?

Captain SAGER. Yes.

(The material referred to is as follows:)

LIST OF GOVERNMENT EMPLOYEES, BAR, ST. LOUIS, MO.

FINAL ASSEMBLY, FLIGHT OPERATIONS EXPERIMENTAL PROJECTS BRANCH

C. W. Morris: Supervisory aircraft inspector, GS–10.
A. M. Jenkins: Supervisory aircraft inspector, GS–9 (second shift).
C. J. Rauscher: Supervisory Aircraft inspector, GS–9 (first shift).
W. J. Wright: Aircraft inspector, GS–8.
J. T. Arkes: Aircraft inspector, GS–8.
E. L. Bleilie: Aircraft inspector, GS–8.
J. L. Brown: Aircraft inspector, GS–8.
J. A. Caudel: Aircraft inspector, GS–8.
J. C. Fry, Jr.: Aircraft inspector, GS–8.

E. W. Heitman, Aircraft inspector, GS–8.
H. M. Katzen, Aircraft inspector, GS–8.
H. C. Muether: Aircraft inspector, GS–8.
E. W. Nelson, Jr.: Aircraft inspector, GS–8.
J. L. Neuroth: Aircraft inspector, GS–8.
E. C. Oberkrom: Aircraft inspector, GS–8.
P. R. Orr: Aircraft inspector, GS–8.
C. L. Palmer: Aircraft inspector, GS–8.
F. M. Reisinger: Aircraft inspector, GS–8.
C. B. Sippel, Jr.: Aircraft inspector, GS–8.
G. L. Uzzell: Aircraft inspector, GS–8.

RIC (BUAER) EVANSVILLE, IND.

J. H. Froehler: RIC, Evansville, GS–9.
M. C. Dickmann: Assistant RIC, Evansville, GS–8.
H. L. Fore: Aircraft inspector, GS–7.
S. N. Hess: Aircraft inspector, GS–7.
R. C. Hunt: Aircraft inspector, GS–7.
J. O. Kerney: Aircraft inspector, GS–7.
M. E. Maddox: Clerk-typist, GS–3.

RIC (BUAER) DAVENPORT, IOWA

J. C. Kreitzer: RIC, Davenport, GS–9.
J. M. Mears: Assistant RIC, Davenport, GS–8.
R. J. Dampf: Aircraft inspector, GS–7.
G. C. Conway: Aircraft inspector, GS–7.
P. L. McKissack: Aircraft inspector, GS–7.
S. B. Ricketts: Clerk-typist, GS–3.

FACILITIES DIVISION

G. E. Pohlman: Assistant Facilities Division Head, GS–11.
T. C. Huegle: Facilities procurement supervisor, GS–8.
W. J. Klock: Equipment specialist, GS–8.
M. P. Rancilio: Facilities division clerk, GS–3.

PRODUCTION DIVISION

D. F. Lessey, Jr.: Civilian Head of Production Division, GS–11.
G. Staples: Material expediter, GS–8.
S. S. Duncan: Production Division clerk, GS–3.
T. F. VanBergen: GFE clerk, GS–3.

CONTRACTS DIVISION

A. R. Eckwald: Contract Division Head, GS–11.
R. S. Unks: Air Force ACO assistant, GS–11.
L. D. Frigillana: Cost analyst, GS–11.
V. L. McConnell: Property administrator, GS–8.
H. T. Sprick: Contract Division clerk, GS–3.
E. M. Brackmann: Air Force clerk, GS–4.

BAR ST. LOUIS CIVILIAN PERSONNEL—DIVISION AND FUNCTIONAL TITLE

ENGINEERING DIVISION

G. Hicks: Chief engineer, GS–13.
R. M. Jeffares: Aeronautic engineer, GS–11.
R. A. Thompson: Electronic engineer, GS–12.
S. M. Weigers: Engineering clerk, GS–3.
A. R. Kullman: Engineering clerk, GS–3.

ADMINISTRATION DIVISION

I. A. Coleman: Chief clerk, GS–6.
L. E. Hillerich: Assistant chief clerk and personnel clerk, GS–4.
P. D. Wilson: Rotating clerk, GS–3.
H. R. Sparacio: Incoming mail clerk, GS–3.
T. W. Malkowski: Outgoing mail clerk, GS–3
D. Lierman: Teletype operator, GS–3.
P. A. Bouchard: Assistant incoming mail clerk, GS–2.
J. D. Boyd: File clerk, GS–2.
F. E. Willen: File clerk, GS–2.
P. J. Mathewson: File clerk, GS–2.
G. F. Votruba: Rotating file clerk, GS–2.

QUALITY CONTROL DIVISION

T. G. Hughes: Chief inspector, GS–12.
J. C. Vorel: Assistant chief inspector, GS–11.
H. L. Warneke: Purchase order clerk, GS–3.
E. D. Castle: Inspection clerk, GS–3.
E. A. Lesseg: Shipping clerk, GS–3.

Procurement and outside inspection section

M. A. Bittleston: Supervisory aircraft inspector, GS–8.
E. T. Carney: Aircraft inspector, GS–7.
C. W. Manahan: Aircraft inspector, GS–7.
P. F. Sullivan: Aircraft inspector, GS–7.
D. B. Newby: Aircraft inspector, GS–7.

Special projects section

R. B. Chase: Aircraft inspector, GS–9.

Receiving, shipping, detail fabrication subassembly branch

A. E. Wesemann: Supervisory aircraft inspector, GS–9.
H. F. Depping: Supervisory aircraft inspector, GS–8.
P. Blakenship: Aircraft inspector, GS–7.
W. B. Brittain, Jr.: Aircraft inspector, GS–7.
H. R. Coster: Aircraft inspector, GS–7.
M. O. Finn: Aircraft inspector, GS–7.
C. W. Franklin: Aircraft inspector, GS–7.
R. G. Johnson: Aircraft inspector, GS–7.
N. C. Kincer: Aircraft inspector, GS–7.
C. P. Nickens: Aircraft inspector, GS–7.
W. C. Oberkrom: Aircraft inspector, GS–7.
J. J. Scarpinato: Aircraft inspector, GS–7.
K. E. Sullivan: Aircraft inspector, GS–7.
W. E. Vogt: Aircraft inspector, GS–7.
B. M. Willis: Aircraft inspector, GS–7.
H. T. Jennings: Aircraft inspector, GS–6.

Security

B. J. Niehaus: Security technical assistant, GS–4.

BAR and assistant BAR

P. E. Robertson: Secretary to BAR and assistant BAR, GS–4.

Mr. FOGLER. Mr. Chairman, I think I probably made a very unwise commitment, but I would like to be excused. I have a commitment for lunch. I don't know whether I should call him one of your colleagues or not, but one of your good Senators from your party. May I be excused?

Mr. HOLIFIELD. You may be excused. Thank you for your attendance during the past few days.

BUREAU OF AERONAUTICS REPRESENTATIVE
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CAPT J. P. Sager, 1510

ASSISTANT
CDR R. H. Shireman, Jr., 1310

FLIGHT TEST
LT R. C. Mackintosh, 1312

SECURITY
LT J. W. Hamilton, 1310 (50%)

ENGINEERING DIVISION

LCDR B. V. Turner, 1510

258 Chief Engineer / Supv. Aero. Engineer GS-13 — G. Hicks (50%)

DESIGN BRANCH
258 Supv. Aero. Engineer GS-13 — G. Hicks (50%)

PRODUCTION BRANCH
293 Aeronautic Engr. (Gen) GS-11 — R. M. Jeffares, Jr. (80%)

PROJECT BRANCH
Vacancy

ELECTRONICS BRANCH
233 Electronics Engineer GS-12 — R. A. Thompson

TECHNICAL PUBLICATIONS BRANCH
293 Aeronautic Engr. (Gen) GS-11 — R. M. Jeffares, Jr. (20%)

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LT J. W. Hamilton, 1310 (50%)

241 Assistant / Supervisory Clerk GS-6 — I. A. Coleman (70%)

FISCAL BRANCH
292 Clerk GS-4 — L. E. Hillerich (30%)

PERSONNEL BRANCH
292 Clerk GS-4 — L. E. Hillerich (70%)

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241 Supervisory Clerk GS-6 — I. A. Coleman (30%)

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264 Secretary (Typing) GS-4 — P. E. Robertson

SECURITY
263 Secretary (Steno) GS-4 — B. J. Niehaus

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281 Clerk-Steno GS-4 — E. M. Brachmann
242 Clerk-Steno GS-3 — H. T. Sprick

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Clerk-Typist GS-3
282 S. S. Duncan
246 T. F. VanBergen

FACILITIES DIVISION
245 Clerk-Typist GS-3 — M. F. Rancilio

ENGINEERING DIVISION
Clerk-Typist GS-3
144 A. R. Kullman
106 S. M. Wiegers

QUALITY CONTROL DIVISION
Clerk-Typist GS-3
278 H.L. Warneke
279 E. D. Castle
275 E. A. Lessag

ADMINISTRATION DIVISION
250 Clerk-Typist GS-3 — F.D.Wilson
268 Teletype Operator — D. Liarman, GS-3

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270 Mail & File Clerk GS-3 — M. R. Sparacio
Clerk-Typist GS-2
280 P. A. Rouchard
271 J. D. Boyd
272 G.F.Votruba
273 F.E.Willen
267 T.W.Malkowski GS-3
273A P.J.Mathewson GS-2

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257 Supv. Aircraft Inspector GS-12 — T. G. Hughes

Assistant
82 Supv. Aircraft Inspector GS-11 — J. C. Vorel (80%)

TRAINING BRANCH
213 Aircraft Inspector GS-8 — C. B. Stipel, Jr. (20%)

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Inspector in Charge
125 Supv. Aire. Inspector GS-10 — C. W. Morris

Assistants
Supv. Aire. Inspector GS-9
147 A. M. Jenkins
219 C. J. Rauscher

RECEIVING, SHIPPING, DETAIL FABRICATION, SUB-ASSEMBLY BRANCH
Inspector in Charge
289 Supv. Aire. Inspector GS-9 — A. K. Wesemann

Assistant
290 Supv. Aire. Inspector GS-8 — H. F. Depping

PROCUREMENT PROCESSES BRANCH
82 Supv. Aire. Inspector GS-11 — J. C. Vorel (20%)

FACILITIES DIVISION

LT W. F. Sullivan, 1310 (80%)

Assistant
217 Production Specialist (Gen) GS-11 — G. H. Pohlman

REQUIREMENTS BRANCH
260 Production Spec. (Gen) GS-8 — T. C. Hiegle

MAINTENANCE BRANCH
261 Prod. Spec. (Mach. Tools) GS-8 — W. J. Klock

INDUSTRIAL MOBILIZATION PLANNING BRANCH
LT W. F. Sullivan, 1310 (20%)

PRODUCTION DIVISION

CDR R. W. Jackson, 1310

Assistant
146 Supv. Production Spec. (Gen) GS-13 — D. F. Leasey, Jr. (20%)

PRODUCTION CONTROL BRANCH
140 Supv. Prod. Spec. (Gen) GS-11 — D. F. Leasey, Jr. (80%)

SPARES AND CHANGES BRANCH
LT A. S. Crelder, 1830 (50%)

MATERIALS BRANCH
LT A. S. Crelder, 1830 (50%)

GFE SECTION
285 Production Spec. (Gen) GS-8 — G. Staples (90%)

CFE SECTION
285 Production Spec. (Gen) GS-8 — G. Staples (10%)

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REPRESENTATIVE IN CHARGE, BUAER
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191 Supv. Aircraft Inspector GS-7 — J. H. Proehler

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190 Supv. Aircraft Inspector GS-8 — M. C. Dickmann

REPRESENTATIVE IN CHARGE, BUAER
DAVENPORT, IOWA

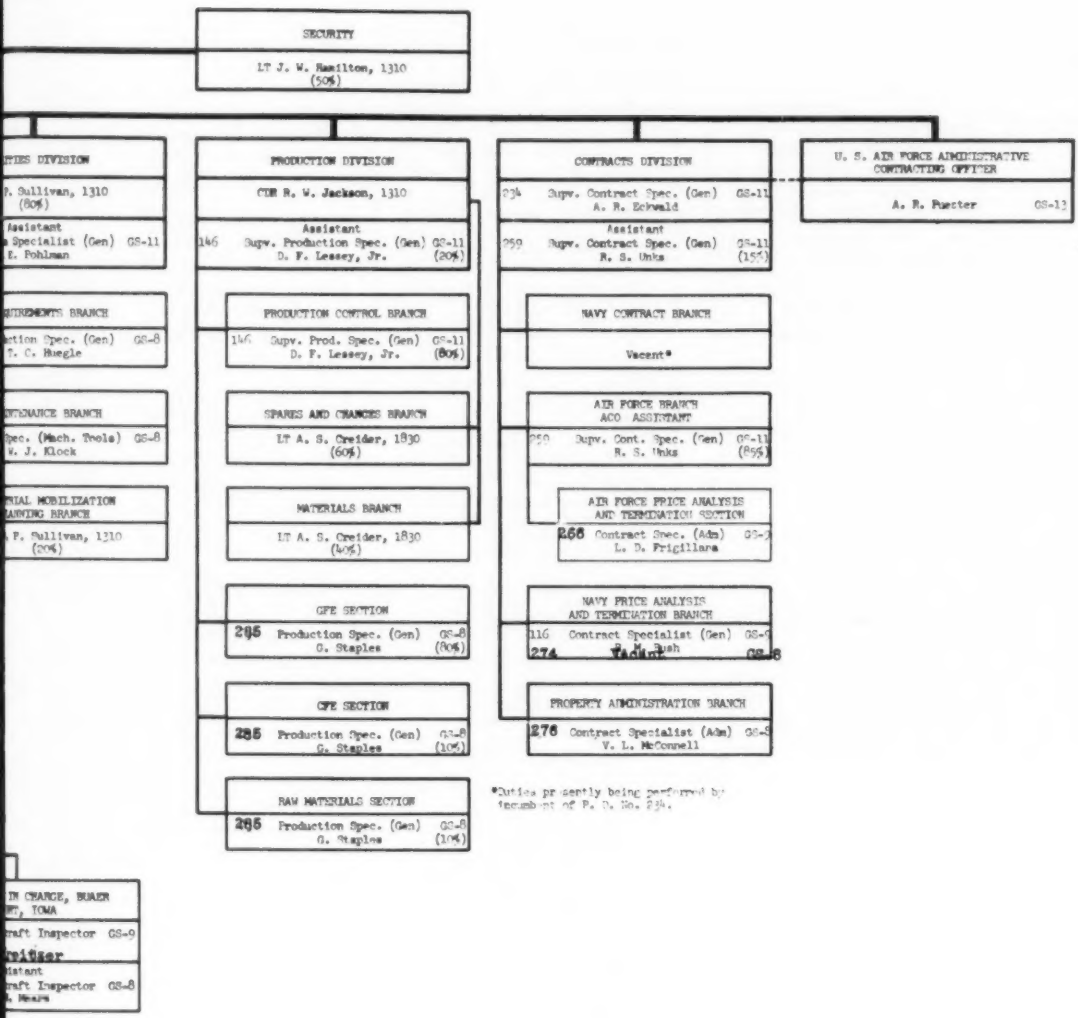
284 Supv. Aircraft Inspector GS-9 — J. C.Kreitzer

Assistant
231 Supv. Aircraft Inspector GS-8 — J. M. Meare

APPROVED J. P. Sager

BAR, ST. LOUIS ORGANIZATION CHART

28 JULY 1955


SECURITY
LT J. W. Hamilton, 1310 (50%)
PRODUCTION DIVISION
CDR R. W. Jackson, 1310
Assistant
146 Supv. Production Spec. (Gen) GS-11
D. F. Lessey, Jr. (20%)
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146 Supv. Prod. Spec. (Gen) GS-11
D. F. Lessey, Jr. (80%)
SPARES AND CHANGES BRANCH
LT A. S. Creider, 1830 (60%)
MATERIALS BRANCH
LT A. S. Creider, 1830 (40%)
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285 Production Spec. (Gen) GS-8
G. Staples (90%)
CFE SECTION
285 Production Spec. (Gen) GS-8
G. Staples (10%)
RAW MATERIALS SECTION
285 Production Spec. (Gen) GS-8
G. Staples (10%)
CONTRACTS DIVISION
234 Supv. Contract Spec. (Gen) GS-11
A. R. Eckwald
Assistant
259 Supv. Contract Spec. (Gen) GS-11
R. S. Unks (15%)
NAVY CONTRACT BRANCH
Vacant*
AIR FORCE BRANCH
ACO ASSISTANT
259 Supv. Cont. Spec. (Gen) GS-11
R. S. Unks (85%)
AIR FORCE PRICE ANALYSIS AND TERMINATION SECTION
266 Contract Spec. (Adm) GS-7
L. D. Frigillana
NAVY PRICE ANALYSIS AND TERMINATION BRANCH
116 Contract Specialist (Gen) GS-9
274 Vacant GS-8
PROPERTY ADMINISTRATION BRANCH
276 Contract Specialist (Adm) GS-9
V. L. McConnell
U. S. AIR FORCE ADMINISTRATIVE CONTRACTING OFFICER
A. R. Fuecter GS-13
*Duties presently being performed by incumbent of P. D. No. 234.

Mr. FOGLER. Will you ask the reporter to add to my statement when I said we had been given a full hearing that we very much appreciate that.

Mr. HOLIFIELD. Thank you, Mr. Secretary.

There is one question I would like to ask Mr. Smith of Westinghouse at this time.

In your contract with the Navy, Mr. Smith, are labor troubles an allowable factor in permitting you to be excused for not meeting your delivery obligation under your contract? Is that one of your escape clauses?

Mr. SMITH. I am advised that is just reason and excuse for adjustment of delivery schedule.

Mr. HOLIFIELD. Thank you, sir.

As the representative of Westinghouse, is there any additional material which you wish to produce for this committee's consideration?

Mr. SMITH. I believe we have been asked to furnish our tabulation of the accidents and we are prepared to do that immediately after adjournment, sir.

Mr. HOLIFIELD. Have you been given a fair opportunity to present any testimony you wish?

Mr. SMITH. We have, sir, and we very much appreciate it.

Mr. HOLIFIELD. Mr. McDonnell, we have concluded our questions to you.

Mr. McDONNELL. Yes, sir.

Mr. HOLIFIELD. Do you at this time wish to volunteer any additional information to this committee and have you been given a fair opportunity to present all the information which you desire to present?

Mr. McDONNELL. Mr. Chairman, I think the committee has been very fair. I feel there are a couple of points that may not have been sufficiently brought out in the testimony and I have no particular data at hand though to clarify it. I believe that of all the money involved in this whole program if an analysis is made of where all of that went and results obtained and where we now stand in this national defense picture, that it can be proven that constructive things have been accomplished, that the net loss is very small and I can point out specifically that in some of the overall figures there has been included all of the Government-furnished equipment.

When one airplane contract is terminated all the Government-furnished equipment can usually be applied to some other airplane contracts elsewhere, such things as radio, radar, instruments and so on.

I believe a careful analysis will show that under the circumstances and the backgrounds involved, on the whole this has been a very constructive program.

Obviously those figures can't come from this airframe manufacturer alone. But in the final analysis of the committee, our company remains at your service to bring out that generalized point that I am not in position to present an overall figure on today. The only other one point, Mr. Chairman, I still feel that the way in which the case of Lloyd Harrison has been handled has, I may say, inadvertently very likely damaged the reputation of a fine and able public servant.

I feel that if people going from Government service after long and useful careers there unless the treatment of it gets more sympathetic treatment, that the Government is going to find it harder as the years go by to get able men to sacrifice themselves in public service.

I thank you, sir. We have appreciated the opportunity to appear before such a fair committee.

Mr. HOLIFIELD. Thank you, Mr. McDonnell.

Mr. Eckhart wishes to ask for a couple of documents to fill up our gap in the record.

Mr. ECKHART. I have not been able to find a request in the transcript for the letters sent by Mr. McDonnell to the Bureau of Aeronautics in July 1951 and April 1952 recommending an alternate engine to be installed in the F3H.

Mr. HOLIFIELD. Will you supply that in case it has not been requested?

Mr. MCCONNELL. Yes, sir.

(The letters referred to contain classified security information, and are being retained in the subcommittee files.)

Mr. ECKHART. In connection with the letter of October 8, 1954, it has been requested that the answers from McDonnell be supplied for the record. However, I would like to ask that Mr. Murray supply the committee with a record of any conferences or any negotiations between the McDonnell management personnel and the Bureau of Aeronautics in bringing this thing to a close and what members of the McDonnell management sat in on these conferences and where they were held.

Mr. MURRAY. Very good, will do so.

(Mr. Murray, after the close of the hearings, indicated no such conferences were held at any time.)

Mr. HOLIFIELD. At this time the committee will call these hearings to a close and the Chair wishes to thank all of the witnesses for their time and their testimony here and we will consider the hearings concluded subject to the presentation to the committee of documents which have been requested and which will be made a part of the official record.

Thank you very much.

(Whereupon at 12:30 p. m. the hearing was adjourned.)

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